the Skeptical Inquirer

THE NEUROPATHOLOGY OF SPIRITUAL POSSESSION

Alien Abductions: Psychology & Folklore

The MJ-12 Documents: Part II

Homeopathy Clinic / Test of Sheldrake

Abigail's Apparition / Ghost Lights

VOL. XII NO. 3/SPRING 1988 $6.00
Published by the Committee for the Scientific Investigation of Claims of the Paranormal

the Skeptical Inquirer

THE SKEPTICAL INQUIRER is the official journal of the Committee for the Scientific Investigation of Claims of the Paranormal.

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Subscriptions, change of address, and advertising should be addressed to: THE SKEPTICAL INQUIRER, Box 229, Buffalo, NY 14215-0229. Old address as well as new are necessary for change of subscriber's address, with six weeks advance notice.

Inquiries from the media and the public about the work of the Committee should be made to Paul Kurtz, Chairman, CSICOP, Box 229, Buffalo, NY 14215-0229. Tel.: (716) 834-3222.

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Subscription Rates: Individuals, libraries, and institutions, $22.50 a year; back issues, $6.00 each. THE SKEPTICAL INQUIRER is available on recordings from Associated Services for the Blind, 919 Walnut Street, Philadelphia, PA 19170 (215-627-0600).

Postmaster: THE SKEPTICAL INQUIRER is published quarterly. Spring, Summer, Fall, and Winter. Printed in the U.S.A. Second-class postage paid at Buffalo, New York, and additional mailing offices. Send changes of address to THE SKEPTICAL INQUIRER, Box 229, Buffalo, NY 14215-0229.

the Skeptical Inquirer

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News and Comment

Row Over Sargent's Psi Experiments Erupts With Evidence of Carelessness and Cheating

BEGINNING almost ten years ago, a series of reports of highly successful ganzfeld psi experiments began emanating from the University of Cambridge laboratory of Carl Sargent. They quickly became a significant part of the case for scientific evidence of psi, or extrasensory perception.

These experiments, and Sargent himself, who holds a Ph.D. in parapsychology from Cambridge, are now the subject of a bitter controversy. The dispute concerns newly published observations by psychologist Susan Blackmore that call Sargent's experimental procedures into serious question and cast doubt on the validity of his results.

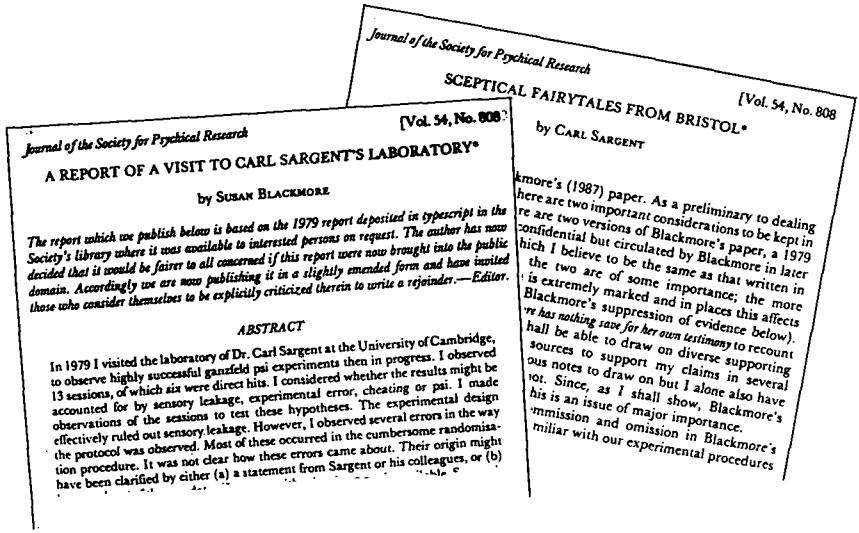
This is the second major controversy to break out over the experimental methods used in ganzfeld experiments. Earlier, University of Oregon psychologist Ray Hyman—like Blackmore, a respected and well-informed critic of parapsychology—published a lengthy critique of the entire ganzfeld data base, pointing out serious weaknesses (see *SI*, Fall 1985, for a summary). But the Sargent dispute has recently become somewhat more hostile, perhaps because Blackmore raises the possibility of fraud in Sargent's case.

In November 1979, Blackmore, now with the Brain and Perception Laboratory at the University of Bristol, was engaged in parapsychological research herself (see her article about these experiences, "The Elusive Open Mind," *SI*, Spring 1987) and went to visit Sargent's Cambridge laboratory. Although Sargent had been getting highly successful results in ganzfeld experiments, in superficially similar experiments at the University of Surrey Blackmore had been unsuccessful. She wanted to observe his methods and conditions and compare them with her own to learn the reasons for the discrepancy in results.

Sargent invited Blackmore to come for a month. She received a grant from the Society for Psychical Research (SPR) but was permitted to stay only eight days. During the visit she observed flaws in the way Sargent's research protocol was observed and in the randomization procedures, although the source of these errors wasn't apparent.

Blackmore wrote up a report of her observations and concerns for the SPR, available to interested persons on request. Since then, an internal row has taken place over Sargent's unwillingness to respond to requests from the Parapsychological Association (PA) for data from the experiments to confirm or deny Blackmore's charges. The PA then censured Sargent for his refusal.

This led John Beloff, editor of the British *Journal of the Society for Psychical Research* (*JSPR*), and Blackmore to make Blackmore's 1979 report public. It was published, in slightly amended form, in *JSPR's* July 1987 issue (54, no. 808: 186-198), and was followed in the same issue by a vitriolic response from Sargent and another from two of Sar-



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A REPORT OF A VISIT TO CARL SARGENT'S LABORATORY*

by Susan Blackmore

The report which we publish below is based on the 1979 report deposited in typescript in the Society's library where it was available to interested persons on request. The author has now decided that it would be fairer to all concerned if this report were now brought into the public domain. Accordingly we are now publishing it in a slightly emended form and have invited those who consider themselves to be explicitly criticized therein to write a rejoinder.—Editor.

ABSTRACT

In 1979 I visited the laboratory of Dr. Carl Sargent at the University of Cambridge, to observe highly successful ganzfeld psi experiments then in progress. I observed 13 sessions, of which six were direct hits. I considered whether the results might be accounted for by sensory leakage, experimental error, cheating or psi. I made observations of the sessions to test these hypotheses. The experimental design effectively ruled out sensory leakage. However, I observed several errors in the way the protocol was observed. Most of these occurred in the cumbersome randomisation procedure. It was not clear how these errors came about. Their origin might have been clarified by either (a) a statement from Sargent or his colleagues, or (b)

Journal of the Society for Psychical Research [Vol. 54, No. 808

SCEPTICAL FAIRYTALES FROM BRISTOL*

by Carl Sargent

kmore's (1987) paper. As a preliminary to dealing here are two important considerations to be kept in re are two versions of Blackmore's paper, a 1979 confidential but circulated by Blackmore in later hich I believe to be the same as that written in the two are of some importance; the more is extremely marked and in places this affects Blackmore's suppression of evidence below). *re has nothing save for her own testimony* to recount hall be able to draw on diverse supporting sources to support my claims in several ous notes to draw on but I alone also have ot. Since, as I shall show, Blackmore's his is an issue of major importance. mmission and omission in Blackmore's miliar with our experimental procedures

Blackmore's pointed critique; Sargent's vitriolic response.

gent's colleagues in the experiments. In the following issue, Blackmore responds to some of their criticisms.

Ganzfeld experiments are based on the idea that psi, or ESP, is more likely to occur when a subject is totally relaxed and deprived of sensory input. In the experiments, the subject lies down and half of a ping-pong ball is placed over each eye and affixed with cotton and tape. White noise is played through headphones. An experimenter watches through a oneway mirror from an adjacent control room, listening to and recording the subject's statements.

At an agreed-upon time an "agent" at another location then concentrates on—in the sessions observed by Blackmore—one of four pictures selected from one of 27 randomly selected sets of four pictures. The agent tries to "send" impressions of the image to the subject by telepathy.

Immediately afterward, the experimenter and the subject examine a duplicate set of four pictures and together judge and rank their degree of correspondence with the subject's recorded impressions. Each is rated on a scale of 1 to 99 and ranked 1 to 4. This is then compared with the actual picture the agent was looking at to see whether the result is a hit or miss.

During Blackmore's visit to Sargent's lab, three ganzfeld experiments were in progress. She observed 12 experimental sessions at the lab and another at a private home. Of the 12 conducted in the laboratory the success rate expected by chance was 25 percent. There were 6 direct hits, for a hit rate of 50 percent, which seemed to confirm Sargent's previous high scoring rates.

All sorts of elaborate procedures supposedly protected the randomization and envelope-selection processes. But Blackmore found some disturbing flaws in the way they were conducted.

She hypothesized a number of scenarios, other than psi, that might account for the positive results and then proceeded to look for evidence for them. Several had to do with improper handling of the sealed envelopes containing the letters A to D to select the pictures. For instance, the main pile of envelopes might be marked, or be partly replaced, or be biased by several methods. If cheating with the envelopes were taking place, one might expect envelopes to disappear from

Notes and Comments on a Year Of Expansion and Growth

By several measures this has been one of the best years ever for the SKEPTICAL INQUIRER. We have increased the size of the magazine, and we have tried to be more topical. We are publishing substantive evaluations of some of the subjects most in the popular consciousness. We've had 11 years of steady growth in circulation, but this past year was the best yet. The number of paid subscribers rose 25 percent, from 28,000 to 35,000. (We welcome all you new readers.)

Even we were surprised by this. When compared with supermarket tabloids, our readership is of course small, but it compares favorably with some very distinguished and important scientific and scholarly publications. That class of publications, I hope you will agree, is more in keeping with our approach if not always our achievement.

Actually we are an unusual hybrid: part semipopular magazine, part scientific and scholarly journal. I think it's fair to say that we not only help to cross disciplinary barriers within scientific fields but bridge the gaps between the "hard" and "soft" sciences, between science and the humanities, between academics and nonacademics, and between science and the general public. Expertise is where you find it, and no part of society has a monopoly. We seek it out and welcome it, from whoever has a willingness to participate and a concern about the public-education issues we address. The readers are the beneficiaries.

Two wholly unexpected phenomena have arisen in conjunction with the growth of CSICOP and the SKEPTICAL INQUIRER.

One is the rapid formation of international, regional, and local groups inspired by CSICOP. No one anticipated that in virtually every region of the United States people would form their own groups to address the same kinds of issues at the local level. These groups are totally autonomous and have no official or legal connection with CSICOP. They are involving thousands of people in an effort to critically examine paranormal and fringe-science claims promulgated in their own cities and states. A number publish excellent newsletters. *Laser,* by the Southern California Skeptics, and *BASIS,* by the Bay Area Skeptics, are two of the more notable, but there are others. If you are not already involved with a group in your area, you might wish to seek it out. (See the ever-expanding list at the back of this and every *SI* issue.)

National and regional groups in other countries have likewise mushroomed. When the CSICOP Executive Council met in Toronto in November, it participated in a luncheon meeting with the Ontario Skeptics. This group didn't even exist a year or so ago. Nearly 200 people came to the meeting, and there were prominent news articles in

the two Toronto daily newspapers. At last count, outside the United States there were 26 groups in 16 countries, with others in the process of formation. Several of these groups also publish their own newsletters. A notable new one, the *British & Irish Skeptic,* bridges national and group boundaries. The SKEPTICAL INQUIRER, by the way, now goes to 55 countries, and we are actively working to increase its visibility in Europe and elsewhere.

The second phenomenon is the demand for back issues of the SKEPTICAL INQUIRER. When people discover us, they want to see what we've published in the past. Almost everyone requests some back issues, and many order the entire set (now totalling 42). This intense interest and support is very heartening. Virtually alone among magazines I know, the SKEPTICAL INQUIRER keeps every back issue in print. This isn't easy. In 1987 alone, 17 of our previous issues had to be reprinted to meet this demand. People appear to recognize that our back issues constitute a valuable body of evaluative material about all manner of topics. (No, we haven't covered everything, and we never expect to run out of subjects.)

As a result of this interest, we are very pleased that the ten-year index of the SKEPTICAL INQUIRER has now finally been published. There have been earlier, less ambitious indexes, but this one is by far the best yet. I think you will find it very useful. It covers everything published in the SKEPTICAL INQUIRER (even letters to the editor!) from 1976 to 1986, volume 1 through volume 10. It is 101 pages long and is nicely printed in the same page size as the magazine. Its subject index is extensive (74 printed pages), with hundreds of entries both specific (Afghanistan Triangle, Project Grillflame, Psychic Warfare, Thoughtography) and general (Education, Paranormal Phenomena, Pseudoscience, Skepticism). There is also an author index (approximately 450 names) and an index of book reviews by title (127 books), author, and reviewer. Look for an announcement elsewhere in this issue of how to obtain this handy supplement to your back issues.

Also available are two books of SKEPTICAL INQUIRER articles, arranged by subject. The first, *Paranormal Borderlands of Science,* includes selections from 1976 to 1981; the second, *Science Confronts the Paranormal,* from 1981 to 1985. Obtain these from the publisher, Prometheus Books, in Buffalo.

We are also pleased to report the publication in India of a book consisting of SKEPTICAL INQUIRER articles along with other articles from the writings of Indian scientists and thinkers. The book, *Science, Nonscience, and the Paranormal,* was edited by Dr. H. Narasimhaiah, former vice-chancellor of Bangalore University, and published by the Bangalore Science Forum, which he founded. Scientists and scholars in India requested that CSICOP permit publication of the articles to assist in their effort to propagate a scientific attitude among the populace.

—Kendrick Frazier, EDITOR

the drawers where they were kept during, rather than after, a session, or that more than one envelope was used for each session.

No marking or switching was observed, but Blackmore did discover a bias (that favored a positive result) in the main pile of envelopes as well as errors in the drawers. Extra envelopes were also found around the room.

She also had observed during one trial that Sargent, although not officially taking part in the session, did the randomization. He also came in during the judging and seemed to influence the subject to judge favorably the picture that was in fact the correct choice. "He seemed to push the subject toward picture B," she reports. B was the one the agent had been "transmitting."

Blackmore reports that when she and Sargent's colleague Trevor Harley presented him with these disclosures, Sargent denied that any of the errors were deliberate. He gave alternative explanations. She asked him to write his own account to explain them, but he never did so.

Blackmore summarizes: "I had predicted that certain methods of cheating would lead to a bias in the main pile. I found that bias." (Sargent said the errors were accidental.)

"I had predicted that certain methods of cheating would necessitate having extra piles of envelopes hidden around the room. These were found." (Sargent explained that they were left over from a previous experiment.)

Furthermore, she says, in one session "Sargent did the randomization when he should not have. A 'B' went missing from the drawer during the session, instead of afterwards. Sargent came into the judging and 'pushed' the subject towards 'B.' An error of addition was made in favor of 'B' and 'B' was chosen. 'B' was the target and the session a direct hit."

Says Blackmore in her *JSPR* report: "The hypothesis of cheating led to the discovery of errors. It explains them fairly neatly and could, if extrapolated to the whole experiment, account for the large effects observed." The alternative hypothesis, she says, "would imply a good deal of carelessness in the running of the experiment." Nevertheless, she says, "I considered that the evidence was not conclusive in favor of either hypothesis and that more evidence was needed." She proposed she make further observations to double-check these hypotheses but Sargent refused her further access.

It was agreed that both Blackmore and Sargent would write up for the SPR archives their versions of the experiments she observed. Blackmore did; Sargent did not.

Blackmore proposed still further ways to test the hypotheses and potentially lift the implications of cheating. These required Sargent's raw data. "I kept hoping that this would happen and the truth would become clearer," she writes. "However, Sargent refused to make this data available."

In 1984, the PA Council asked Martin Johnson to head a committee to investigate the case. Its report reprimanded Sargent for failing to respond to the committee's request for information in a reasonable time.

"I still think there is doubt as to the correct hypothesis," Blackmore emphasizes in her published report. "However, any hope that this will be speedily resolved now seems to be unrealistic. I am therefore presenting the evidence I have, as accurately as possible."

The significance of it all?

Blackmore points out that there has recently been considerable controversy surrounding the value of the ganzfeld data base in providing evidence for psi. "The many experiments involving Sargent as experimenter form a very substantial and important proportion of that data base." She points out that according to Ray Hyman, in his 1985 critique in the *Journal of Parapsychology* (49:3-49), Sargent's nine studies and Charles

Honorton's five account for one-third of the total. Also, according to Honorton, in an article in the same issue of *JP* as Hyman's, Sargent's experiments have the second highest effect size, after Honorton's own, and "if Sargent's findings were removed from this data base it would be considerably weakened as evidence for psi."

Sargent lashes out at Blackmore in his article of response, which he titles, "Sceptical Fairytales from Bristol." He attacks her reliability and integrity and says she committed errors of both commission and omission. He claims her "fraud" hypothesis isn't a hypothesis at all because "it can explain *anything*." Later he says, "My counterhypothesis is simply that Blackmore observed certain trivial and random errors and *then* made up hypotheses to go with them."

Sargent (who is no longer at Cambridge University) says: "I don't care whether people think I'm a fraud or not, but object very strongly to anyone believing that I might be a stupid one. . . . She merely capitalized on random and trivial errors and built a fairytale around them."

He further claims that Blackmore's idea that reanalysis could determine the root of the errors "is just nonsense and readers should not be misled by this claim."

He concludes: "I'm not spending decades defending my results against ever-changing, ever-reformulated reanalyses. *You can never beat the fraud hypothesis* [his emphasis]; it is *totally* unfalsifiable and letting oneself in for this kind of business is a form of masochism I'm not partial to. I stand by all the data reported; it is a matter of utter indifference to me whether Blackmore or anyone else in parapsychology believes me or not."

Incredibly—and probably embarrassingly to parapsychologists striving to bring more scientific rigor to the field—he then suggests that personal experience is superior to data in evaluating claims. "I know the results were real because I was there and *my experience* [his emphasis] tells me so. If I learned one thing in parapsychology, it is that results and data never changed anyone's mind about anything; experience is the only arbiter."

Blackmore told the SKEPTICAL INQUIRER, "I thought many of Sargent's criticisms were misguided." She says she finds Harley's response altogether "more rational and well argued." But she challenges their point about the supposed nonutility of her cheating hypothesis. "Yes, I could have gone on thinking up methods forever and so make it untestable. But I didn't have to. I came up with several quite clear predictions and some of them were confirmed. So it seems pointless to argue that the hypothesis is useless."

Sargent's final words—in his published response—are indeed final. He makes it plain he will cooperate not at all in any further resolution of the matter: "I do not intend to, and I shall not, address this issue again."

We are left to our own judgments.

—*Kendrick Frazier*

Church Decision Leaves Shroud-Test Plans in Disarray

FOR A TIME it looked as though research protocols had been reached that would allow samples of the Shroud of Turin to be radiocarbon dated in a thoroughly scientific manner. Seven respected scientific laboratories in the United States and Europe had planned to do independent dating tests on the shroud samples, and secret research protocols had been worked out in the meetings of researchers and church representatives.

Then came word in November that the church had changed the agreed-upon ground rules. Archbishop Anastasio Ballestrero of Turin informed the scien-

tists that only three of the laboratories could conduct the tests. The labs are the University of Arizona, Oxford University in Britain, and the Technical University of Zurich. Dropped from the list were Brookhaven National Laboratory in Upton, New York; the University of Rochester; Saclay Laboratory in France; and the Atomic Energy Research Authority in Harwell, Britain.

Garman Harbottle, a senior chemist at Brookhaven, said the scientists involved were "thunderstruck" at the church decision not to follow the research protocol. He called the limitation a serious problem. "What if you have three labs doing it and one of them comes out one thousand years different?" Harbottle told *Newsday*. "What do you do? Average all three? Take two and throw out the one? You just throw up your hands."

Professor Harry E. Gove of the University of Rochester's Nuclear Structure Research Laboratory was equally indignant. Having only three labs test such a controversial object is scientifically risky, he said. "Once in a while, you'll get a really bad number," he told the *Rochester* (N.Y.) *Democrat and Chronicle*. "If that happens with six or seven labs, you can handle it." But if you get discrepant figures from one of only three labs, "it will be a can of worms. No result you get after that will ever be convincing."

Gove speculated: "It's almost as if they [church officials] want it to be done in a questionable manner."

The scientists said the archbishop gave no satisfactory reason for the changes in the agreement. He mentioned a need to conserve the shroud material. "That does not seem to be a reasonable or plausible reason for reducing the number of labs," said Harbottle. "The amount of cloth to be taken was minuscule."

The tests use a new counting method that uses accelerator mass spectroscopy to separate and count the individual carbon-14 nuclei within a sample, a method that allows much smaller samples to be radiocarbon dated than earlier carbon-14 dating techniques. Two postage-stamp-sized pieces of the shroud linen would provide sufficient material for all seven research groups.

Another issue: The archbishop's letter did not spell out procedures for ensuring that the shroud samples could not be tampered with. The original research plan had called for representatives of the British Museum, the Vatican, and the Archbishop of Turin to monitor the collection, distribution, and testing of the shroud samples.

Even the labs that were selected were not happy. Paul E. Damon of the University of Arizona said he and his colleagues have expressed concerns about reducing the number of labs to three. "There will be skepticism over the results no matter what we do. But limiting the number of labs will only assure more skepticism. We want to minimize the doubts about the shroud results, not increase them." He said Zurich and Oxford also expressed concerns.

"We have basically said we are honored to be chosen but that we prefer to go back to the original plan for dating the shroud," Damon said in an Associated Press dispatch. "The whole issue is under active discussion now."

In January, Gove and Harbottle held a news conference at Columbia University to protest the decision to limit the test to three laboratories. They pointed to the danger of having too few analyses, in case one of the labs makes a serious error—as happened in an earlier test run. The same day, CSICOP, in support of their complaint, sent telegrams to the selected laboratories asking them to refuse to take part in the test unless the church authorities agree to include the other laboratories and to restore the scientific protocol protecting the chain of evidence.

—Kendrick Frazier

Chinese 'UFO Sighting' Part of Japanese Launch

A SPECTACULAR light show in the evening skies over Shanghai, China, on August 27, 1987, widely reported by the U.S. news media as a UFO, was identified by an investigator for CSICOP as part of a Japanese satellite launch.

James E. Oberg, an aerospace engineer at NASA's Johnson Space Center in Houston, and a member of CSICOP's UFO Subcommittee, reported that the visual apparition was nothing more than excess fuel dumped from the second-stage booster rocket of the Japanese launch.

UFO over Shanghai sets the city buzzing

Special to China Daily
by Shen Feiyue

SHANGHAI — The appearance of an unidentified flying object (UFO) over China's largest city on Thursday night has set everybody talking.

The UFO was a much-discussed topic on jammed buses and in usually quiet offices yesterday morning. Witnesses of the phenomenon were treated with respect.

"This is the first report about a UFO in Shanghai," said Shu Jiexin, chief engineer of the Shanghai Meteorology Bureau said.

Yao Kang, a staff member in China Daily's Shanghai Branch, became quicker ... was one of the people who saw the ... strange flying object while ... with his wif... ple's Squa...

"It was a ... ed up and s... orange ba... hanging in ... southwest of ... "Above the b... was a misty ... diameter of a ... looked like a h... gas.

"The luminar... high and at first ... mal balloon," Ya... it began to rotat... first, but grad...

UFO visits Shanghai?

BEIJING (UPI) — Shanghai residents say the city got its first visit of an unidentified flying object, but military officials who tried to track the mysterious spinning "plate" revealed no details of their findings, the Xinhua News Agency said Friday.

Several witnesses claimed they saw a UFO passing over the city for around 40 minutes Thursday evening, Xinhua said. ... like an oval plate and ... comet with a tail ... news

... but he saw it for only a few seconds before it spun clockwise and flew eastward, Xinhua said.

A People's Liberation Army officer revealed that military aircraft took off to trace and observe the object, but he said no further information was available.

Officials at a Shanghai meteorological station also reported sighting the UFO.

"It was the first time for a UFO to visit the city," one meteorologist told Xinhua.

... newspapers quoted ... counties as ... object, ... tennis ball was out of ... minute.

... orts also came into the ... ten suburban counties ... ming, Chuansha, Jinlang, Nanhui and ...

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... ing object disap... ast China Sea. ... e shape of the ... e were identical to those described by other witnesses.

Shu Jiexin, chief engineer of the Shanghai Meteorology Bureau, said the UFO was probably caused by meteoric ice. When an ice meteorite collides with meteors in the sky, the immense friction generates heat and light. The meteoric ice looks very bright in the dark, but is gradually thawed by the heat at the same time. At last the UFO vanished as the meteoric ice totally melts, Shu said.

There was a report of an occurrence of meteoric ice over Wuxi City in Jiangsu Province near Shanghai in April 1983, but it happened in daytime and therefore no light was detected, Shu said.

According to the Chinese news agency Xin Hua, residents of Shanghai got their first visit from a UFO as a number of witnesses claimed to have seen a bright object pass over the city. Quoting descriptions of observers that it was like "a comet with a tail like an umbrella" and like a "flying orange" that traveled clockwise and eastward, the news agency left little doubt that something strange had occurred.

Oberg became interested when he learned that an account of the sighting had been broadcast by ABC News on the night of August 28. Stories on the sighting were subsequently carried by both the Associated Press and United Press International wire services. Based on the descriptions given, Oberg noted the marked similarity to a number of past UFO sightings that were later revealed to be space projects originating from Earth. One that occurred in mid-August 1986 led to what has been dubbed "The Great East Coast UFO." (See Oberg's article in *SI*, Winter 1986-87.) In this sighting a bright cloudlike UFO appeared in the eastern sky and was visible throughout virtually the entire eastern section of North America.

"In the Chinese case, we have a complete correlation of the sighting with the second launching of a new-model Japanese rocket called the H-1," stated Oberg. "The first launch of the H-1 occurred, not surprisingly, on August 12, 1986. Several hours after launch, while releasing excess propellant, it drifted across the eastern half of North America."

According to Oberg, the second launch of the H-1 occurred at approximately 9:20 (0920) Greenwich Time on August 27. It was conducted by the Japanese National Space Development Agency (NASDA) from the Tanegashima Space Center on Kyushu Island. Using data provided by the Space Surveillance Center of the U.S. Space Command, which tracks all objects in orbit around the earth, Oberg was able to pinpoint the path of the H-1. Three hours after liftoff, on the second pass around the earth, while the booster was spewing a very thin but large cloud of leftover fuel, the H-1 crossed the so-called terminator line, or the daylight/darkness line. At this point, objects in the sky may be visible to people on the ground because of sunlight being reflected off of them, even though the ground itself may be covered

in darkness.

Citing such factors as the launch time, the location, and the altitude of a satellite, Oberg noted that it is only a matter of coincidence where a satellite, or fuel cloud, will cross the terminator line and become visible from the earth. Such sightings are not uncommon and have led to past UFO panics in South America, the Middle East, China, North America, and the Soviet Union. •

Failure of Avalanche Dowsing In Controlled Tests in Norway

NORWEGIANS are said to be born with skis on their feet. The week before Easter, the cities empty. With warmer and longer days, Norwegians go to the mountains for cross-country skiing. Naturally, mountain safety is important, and the Norwegian Red Cross Mountain Rescue has 5,000 volunteer guards on duty during the peak skiing season.

Compared with the alpine countries of Central Europe, avalanche accidents are fairly rare in Norway. The Red Cross nevertheless educates the public in avalanche safety and trains its members in avalanche rescue.

Before Easter 1986, I came across a newspaper article about the Red Cross's advocacy of dowsing for finding avalanche victims. It turns out that this has been the case for more than ten years and that the Norwegian Army officially advocates the method. The experience from real accidents was poor, however. At an avalanche in early March 1986, dowsing was tried in an area where seven or eight soldiers were later found dead. The dowser, an Army captain, got 20 to 30 "registrations." Of these, only one was correct. The lack of any credible success with this method led the Army to undertake tests in May 1987. As the instigator of a public controversy over this use of dowsing, I was invited to take part as an observer.

Three "expert" dowsers from the Red Cross, a "scientific consultant" to that organization in matters of dowsing, and two teams of soldiers who had received a few hours of training were to test their abilities. In the first test, which was performed six times, the four "experts" were to find a soldier "buried" at a random position in a snow wall. The probability for a chance hit was 10 percent. Of 24 registrations, 5 were judged hits—somewhat more than the probable result of 2 or 3, but still too few to be statistically significant. The number in no way approached the 80 to 90 percent success rate predicted by believers.

In the second test, performed three times, a soldier was "buried" under 2 meters of snow in a field approximately 50 meters square and with a probability of a chance hit of 1 percent. Again, 24 registrations were made (multiple registrations were permitted). On the average, the target was missed by 19 meters, the closest registration being 5.1 meters away. It may be added that the "experts" performed as poorly as the inexperienced soldiers. There was strict control to ensure that no extraneous information was supplied to the dowsers. In fact, no one involved knew the outcome until all tests were completed.

How did avalanche dowsing become accepted by the Army and the Red Cross? The main factor seems to have been the

forceful personality of Nils Faarlund, an engineer and an accomplished mountain-climber who runs a school specializing in outdoor life and wilderness survival. Faarlund represents the Red Cross internationally in mountain rescue work and has been a consultant in these matters to the Army.

The Army unit in charge of the tests has concluded that avalanche dowsing should be discontinued. The Norwegian Geotechnical Institute, which is in charge of avalanche research in Norway and also took part in the tests, has warned against such dowsing for several years. As of this writing (October 1987) the Red Cross has taken no official stand. Faarlund still claims that dowsing is a valid tool of "integrated and balanced rescue service" but admits now that the technique is not "fully developed."

—*Rolf Manne*

Rolf Manne is professor of theoretical chemistry at the University of Bergen, Norway, and a member of the Swedish organization Vetenskap och Folkbildning, patterned after CSICOP.

Science Center Helps Students Separate Science, Pseudoscience

OUR WORLD is filled with decisions. As Larry White, director of the Needham Science Center, which serves 2,000 elementary school children in Needham, Massachusetts, points out, many decisions are relatively unimportant, while others affect us for a lifetime.

Some decisions, he notes, relate to our beliefs in the fringe areas of science—astrology, mind-power, ESP, witchcraft. The media and the movies constantly bombard us with the "pro" side of such subjects, he points out. Seldom do we hear the "con" side. "It is simply not as much fun!"

To find out what children really believe about such matters, White and his colleagues last March asked the fourth-grade students in Needham to answer a series of 40 true or false statements. The results show that children do look critically at the world of questionable science.

A majority of the children do not believe in sea monsters, crystal balls, the reality of vampires, psychic metal-bending, or that plants feel pain. But a majority do believe in palm readers, that dreams foretell the future, and that four-leaf clovers bring good luck.

Probably the most interesting part of this project is not the survey and its results but the responses the Science Center prepared for each statement. Teachers had asked for information they could share with students concerning the various controversial beliefs. The result is a compendium of short, clear answers to the very questions posed earlier to the students.

These answers "reflect the positions held by most responsible scientists throughout the world," says the Center's summary. "All of the responses can be backed with *published scientific data* which has been adapted to a fourth grade comprehension level."

Here are two examples:

"*Some people can read other people's minds.* Magicians say emphatically 'No.' All of the 'Mind Readers' and 'Mentalists' we see in theaters and on TV use trick methods well known to professional magicians. The few 'Mind Readers' who have submitted to laboratory tests have either failed miserably or have been caught cheating when magicians were part of the testing team."

"*It is possible to really hypnotize a person.* Hypnotism *is* recognized as a science by doctors, dentists, and psychiatrists around the world. Courses in hypnotism are given in reputable universities around the world." (Not all the answers, as you can see, are negative. A second Q/A notes that it is true that a hypno-

tized person can be made to feel no pain.)

The goal of the Science Center, established in 1964, is to make science come alive for young students and provide enrichment experiences not possible in the typical classroom. It is locally funded and part of the Needham public school system. In 1983 it won an "Excellence in Science Education" award from the National Science Teachers Association.

White says his dual interests in science and magic (he's a member of the Society of American Magicians) accounts for his interest in young people's beliefs in pseudoscience. The first such survey was done ten years ago and resulted in Needham adding units on superstition and pseudoscience to the schools' *science* curriculum.

The survey package is made available to teachers and has resulted in thought-provoking classroom discussions and debates. "It has stimulated wonderful discussions and, with my magic interests, some great demonstrations of 'strange happenings,' " says White. "We hope to create the skeptics of tomorrow by [teaching students] to sift facts and weigh evidence. Perhaps such skills will find practical use when our young people are faced with more serious questions."

For further information about this interesting program contact White at Needham Science Center, Needham Public Schools, 1155 Central Ave., Needham, MA 02192.

—*K.F.*

New Zealanders Pledge $10,000 For Paranormal Demonstration

THE NEW Zealand Skeptics has announced that if anyone can display a paranormal ability under controlled conditions the group will donate $10,000 to a church or charity of the claimant's choice.

The chairman of the group, Dr. Denis Dutton, said he was disappointed that previous offers of rewards in other countries had revealed few self-proclaimed psychics who were willing to put their powers to the test.

"The proponents of the paranormal have replied that true psychics will never abuse their spiritual gifts by performing for personal gain," Dutton said. "We agree that these are worthy sentiments, so now we are giving them a chance to perform for a charity."

Dutton said that he, the Skeptics' secretary, Dr. Chris Connolly, and the group's treasurer, Professor B. H. Howard, are offering the money out of their own pockets. They are especially interested in attracting practitioners of telepathy, clairvoyance, telekinesis, mediumship, psychic surgery, and levitation.

In order to obtain release of the cash award, the paranormal claimant must pass a controlled test. "The controls are not designed to make the demonstration difficult," Dutton explained. "They only make it impossible to cheat."

Connolly said that he knew some people sincerely believed they had paranormal powers and he hoped they would come forward. But he warned those who were not genuine that the New Zealand Skeptics were well equipped to spot self-delusion and outright fakery. In addition to scientists, academics, medical doctors, and other interested members of the public, the Skeptics include in their ranks experienced stage magicians.

"Our former chairman, David Marks, caught Uri Geller cheating when he visited New Zealand," Connolly said. "We know all the tricks of self-styled clairvoyants from overseas. . . . No one will be able to impress us with information secretly transmitted by accomplices."

Connolly added that the Skeptics doubt all paranormal claims only because there has as yet been no good evidence for them. "Even the apparently most plausible claims in the past have eventually been shown to be mistaken," he said.

"We would be delighted to discover someone who could demonstrate genuine paranormal powers. It would be well worth our $10,000."

A four-page protocol for laboratory investigation of paranormal claims has been made available. It outlines general procedures for protecting against sensory cues and fraud, for formalized randomization, for keeping accurate and complete records, and for statistical analysis of results. All experimental conditions are to be specified and agreed upon by all parties in advance.

The $10,000 award for a designated charity is available to New Zealand residents who are able to demonstrate psychic, telepathic, or other paranormal powers in New Zealand. Dutton said he "found it frustrating that paranormal abilities can easily be summoned for a $35 'psychic reading' and yet always strangely seem to evaporate in the face of a request to put them to a controlled test."

"Maybe this offer will bring out sincere persons who claim to have paranormal abilities," Dutton said. •

The Sedona Vortices: Light, Vision, and Grandeur

DURING THE *weekend of August* 16, 1987, the town of Sedona, Arizona, braced itself for a predicted invasion of 40,000 members of the "metaphysical community" seeking renewed energy from the so-called vortices, five of which are said to exist in the Sedona area. The worldwide Harmonic Convergence predicted for that time (*SI*, Winter 1987-88) was supposed to enhance the efficacy of the vortices.

Sedona has a population of about 10,000, mostly affluent retirees, and is set in surroundings of spectacular beauty in the mountain foothills of central Arizona. Some 2.5 million tourists pass through Sedona each year, but the locals were apprehensive about an additional 40,000 showing up all at once. Their concerns were largely practical, not metaphysical, consisting of worries about environmental impacts, trash, litter, and sanitation. Otherwise the locals viewed the visitors with amused tolerance, sometimes referring to them as "40,000 harmonica players," or "moronic convergers," the latter being a term originated by the cartoonist Gary Trudeau.

As it turned out, the fears were groundless. Only about 3,000 showed up, just a small bump on the peak of normal summertime weekend tourist traffic. The visitors were quiet and well behaved. Local merchants who expected a bonanza were disappointed, but purveyors of crystals, vortex maps, and the like, did a land-office business.

There are perhaps a couple of hundred believers who are permanent residents of Sedona. Their needs are served by several shops selling metaphysical literature and materials. They have meetings, lectures, and symposia, some with a substantial number of out-of-town participants. This reporter drives past one

of the vortex locations several times daily, and I usually see several cars parked there. From observation of the cars' occupants and the crowds attending the meetings, the believers are largely middle-class, middle-aged females. A considerable number are believers in unorthodox and nontraditional medical practices, and many are UFO enthusiasts.

From the vortex literature, it is impossible to get a rational explanation of the phenomena. It describes the beneficial effects as being the result of electric and magnetic fields, but then defines and describes these fields in ways that make no sense whatever in terms of conventional physical theory as it is generally known today. But in the middle of this bowl of what can charitably be described as mush, there may be some grains of truth. If you sit quietly and meditatively in the vicinity of one of the vortices, you are in a spot of awesome scenic grandeur —in nature's cathedral—and it is very likely that you will leave with a sense of peaceful well-being, both mental and physical. There is an overwhelming visual impact.

Since it is well established that visible light consists of electromagnetic waves, it can be concluded that the vortex believers probably experience a real effect, which is triggered by a well-known electromagnetic process (visible light), and no metaphysical explanation is needed to understand it.

—*Harner Selvidge*

Harner Selvidge is a former electrical-engineering professor and instrumentation researcher who is now an aviation consultant and author. From his tower office on Sedona's mountaintop airport, he can look down with a skeptical eye on the vortices below, and on the UFOs above.

Court Rules Channeler Guilty

A MONTREAL court recently found a channeler guilty of illegally practicing medicine. Ian Bortz had pleaded that it was not he but rather "speakers" from another world who had diagnosed the complaints of an investigator posing as a patient.

Bortz produced a number of impressive witnesses who testified as to his (or rather his "speakers' ") expertise not only in medical diagnoses but also in such fields as theology and quantum physics.

Mr. Justice Jacques Lessard found that the parapsychological theories advanced in support of Bortz's claims were not sufficiently well established. The case is under appeal.

—*Robert S. Carswell*

Library of Congress Drops 'Occult Sciences' Term

SINCE 1910 the Library of Congress has catalogued books on occult topics as "Occult Sciences." Since most such books usually have little to do with real science, this has been a sore point for those who feel the public is already confused enough about these subjects.

Now, however, the Library of Congress has decided to change the listing. From now on books on the occult, the supernatural, and psychical research will be catalogued under the more straightforward term "Occultism." No more misleading reference to science.

Sanford Berman, head cataloguer at the Hennepin County Library in Minnesota, who campaigned for the change, calls the decision a breakthrough and says his library made the change in 1982.

—*K.F.*

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Note: Skeptics groups' committees and boards of directors will meet on the evening of Thursday, November 3.

Registration Forms will be mailed to all subscribers. For further information, write or call Mary Rose Hays, CSICOP, Box 229, Buffalo, NY 14215.

MARTIN GARDNER

Notes of a Fringe-Watcher

The Obligation to Disclose Fraud

IT IS customary among editors of scientific journals to let their readers know when a published paper is found to have been based on fraud. It is the only way to prevent the paper from continuing to mislead later researchers. Such was not the practice of Joseph Banks Rhine.

Rhine outlined his policy of secrecy, in a note titled "The Hypothesis of Deception" (*Journal of Parapsychology,* 2, 151-152, 1938), as follows: "Certain friends of the research in extra-sensory perception," he began, "have recently informed us of rumors . . . that the subjects at Duke University and at other places were practicing deception . . . and that even when caught, these deceptions were deliberately withheld from the public. . . ." Rhine goes on to say that his researchers have become so skillful in safeguarding their experiments against both willful and unwitting deception that "no magician . . is willing to attempt to work (as a magician) under such conditions." Indeed, he continues, so stringent are the controls that "the mere possibility alone" of cheating is "sufficient to bar data from acceptance. . . ."

That subjects and experimenters occasionally cheat is to be expected, Rhine says. It is not surprising, therefore, that his laboratory "[has] encountered a number of phenomena which on closer investigation proved to be fraudulently produced." Should such evidence be made public? "We do not feel," Rhine answers, "that any good purpose could be served by the exposure, à la Houdini, of these instances. . . . In a word, a research project in ESP does not become of conclusive scientific importance until it reaches the point at which even the greatest will-to-deceive can have no effect under the conditions. This criterion is the very threshold of the research field. It leaves us under no obligation to concern ourselves either with the ethics of the subjects or with the morbid curiosity of a few individuals."

My morbid curiosity was strongly aroused when I recently read in Louisa Rhine's *Something Hidden* (1983) a dramatic account of her husband's discovery that a paper he had published in his journal was based on deliberate cheating by the author. Mrs. Rhine refers to the dishonest parapsychologist only as "Jim." He had contributed many earlier articles to Rhine's journal, and this new work was "considered one of the best of those recently reported."

Banks, as Louisa called her husband, intended to make Jim's paper the "centerpiece" of a talk he was scheduled to give at a meeting of parapsychologists in Columbus, Ohio. A few weeks before the symposium, Gardner Murphy asked Rhine for Jim's original records to consider for his own speech on record-keeping and -checking. Jim brought his records to Rhine a few days before the Columbus meeting. To Rhine's horror, when he and two of his assistants began examining the records, they found unmistakable evidence of fraud. "Jim had

Joseph Rhine (right) testing Hubert Pearce, one of his most successful subjects, in 1933.

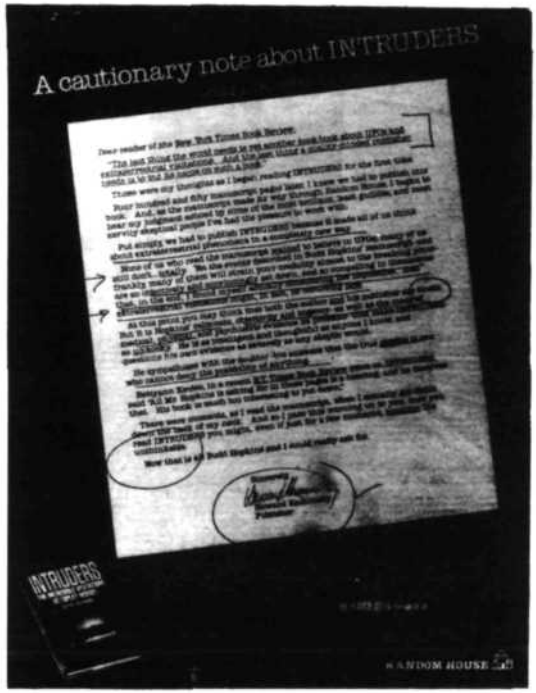
actually consistently falsified his records. . . ," Louisa Rhine tells us. "To produce extra hits Jim had to resort to erasures and transpositions in the records of his call series." Rhine journeyed to Columbus in great anguish. He had to scrap the paper he intended to read, and deliver instead, with visible nervousness, an entirely different talk. Jim's college professor, after seeing evidence of the cheating, was profoundly shocked and even blamed himself for not being more vigilant.

"Jim's name," Louisa Rhine writes, was never "again seen in the annals of parapsychology."

This simply isn't true. Jim (I learned from a disenchanted parapsychologist) was James D. MacFarland, then a young instructor in psychology at Tarkio College, in Tarkio, Missouri. His flawed paper, "Discrimination Shown Between Experimenters by Subjects," appeared in Rhine's journal (*JP*, 2: 160-170, Sept. 1938), the issue following Rhine's piece on deception. No retraction of the paper was ever published. Did references to MacFarland's research vanish from the literature of psi? It did not. J. G. Pratt, in *Extrasensory Perception After 60 Years* (1940), refers to MacFarland's work. And Pratt was one of Rhine's two assistants who originally discovered MacFarland's fudging!

In 1974 Rhine again suffered from unfortunate timing. His paper "Security Versus Deception in Parapsychology," published in his journal (vol. 38, 1974), runs to 23 pages. In it he dismisses deception by subjects as no longer significant. Self-deception by experimenters is more widespread, but this too is limited, Rhine says, to inexperienced novices who form a "subspecies of unprepared experimenters" who "may soon be approaching extinction."

Turning to deliberate deception by parapsychologists, Rhine selects twelve sample cases of dishonest experimenters that came to his attention from 1940 to 1950, four of whom were caught "red-handed." Not a single name is mentioned. What papers did they publish, one wonders. Are their papers still being cited as evidence for psi? Rhine is convinced that such fraud diminished markedly after 1960. "We have at least got past the older phase of having to use detectives and



Kaminsky's incredible "Dear reader" ad on behalf of Hopkins's book.

magicians to discover or prevent trickery by the subjects." He applauds the growing use of computers; but although "machines will not lie," he warns against overoptimism about their usefulness in parapsychology. Complex apparatus, he cautions, "can sometimes also be used as a screen to conceal the trickery it was intended to prevent."

The warning proved prophetic. A few months after Rhine's paper appeared, the acting director of his laboratory and the young man he had chosen to be his successor, Dr. Walter Levy, was caught redhanded tinkering with an electronic recording machine. The tinkering had beefed up the scores of a test he was making on the PK ability of rats. Levy resigned in disgrace, though, again, references to his earlier papers (one on the PK powers of live chicken eggs) have not yet entirely vanished from psi literature. Rhine tried his best to hush up the scandal; but when it was obvious he could not do so, he wrote an apologetic article about it in his journal. As usual he did not mention Levy's name, apparently under the naive delusion that readers would not learn the flimflammer's identity.

Four years later, England's most distinguished parapsychologist, S. G. Soal, was caught having deliberately fudged the data for one of his most famous tests. I see no sign that Soal's other experiments are disappearing from the literature. J. G. Pratt, almost pathologically incapable of believing anyone would cheat, came to Soal's defense. He argued that Soal may have "used precognition when inserting digits into the columns of numbers he was copying down, unconsciously choosing numbers that would score hits on the calls the subject would make later. For me, this 'experimenter psi' explanation makes more sense, psychologically, than saying that Soal consciously falsified for his own records."

I have been told on reliable authority that the files in Rhine's laboratory contain material suggesting fraud on the part of Hubert Pearce, the most talented of all of Rhine's early psychics. Who knows how much data of this sort is buried in the Rhine archives? Let us hope that someday someone with a balanced sense of history, under no compulsion to regard Rhine as one of psi's saints, will be allowed full access to those archives and give us a biography of Banks that is not a hagiography.

Let me change the subject. Early in 1987 Random House published *Intruders,* by Budd Hopkins. It is one of the funniest and shabbiest books ever written about abductions of humans by extraterrestrials who visit Earth in flying saucers. Hopkins is easy to understand. He is a hack journalist of the occult. Harder to comprehend was a full-page advertisement that appeared in the *New York Times Book Review.* It is a long "Dear reader" letter signed by no less a personage than the then-publisher of Random House, Howard Kaminsky.

Kaminsky's letter bursts with praise for Hopkins's worthless volume. The book's events are "objectively set down." You might think the author and the publisher are "kooks," Kaminsky continues, but it is "Hopkins' calmness, objectivity, and cogency—as well as the mass of medical, physical, and psychiatric evidence he presents—that makes *Intruders* so *un*kooky. He is as intelligent and thoughtful as anyone I know, and questions his own evidence as severely as any skeptic would. . . . There were moments, as I read the manuscript, when I actually got chills down the back of my neck."

Well, chills slithered down *my* neck when I read those incredible remarks by the publisher of one of our nation's most distinguished publishing houses. *Newsweek* magazine (October 26, 1987) devoted page 62 to the story of how Kaminsky had been suddenly fired from Random House by his superior, Robert Bernstein, chairman of the firm, to be replaced by Joni Evans, from Simon and Schuster. I have no inside information about the personality clashes behind what *Newsweek* called the "rumble at Random House," but I suspect and hope that Kaminsky's idiotic letter played a role in the rumble. •

Thoughts Are Cheap

Fifteen years of monthly columns have brought me an enormous correspondence from nonprofessionals about all aspects of science. From sheer volume, I obtain a pretty good sense of strengths and weaknesses in public perceptions. I have found that one common misconception surpasses all others. People will write, telling me that they have developed a revolutionary theory, one that will expand the boundaries of science. These theories, usually described in several pages of single-spaced typescript, are speculations about the deepest ultimate questions we can ask—what is the nature of life? the origin of the universe? the beginning of time?

But thoughts are cheap. Any person of intelligence can devise his half dozen before breakfast. Scientists can also spin out ideas about ultimates. We don't (or, rather, we confine them to our private thoughts) because we cannot devise ways to test them, to decide whether they are right or wrong. What good to science is a lovely idea that cannot, as a matter of principle, ever be affirmed or denied?

—Stephen Jay Gould, in "Justice Scalia's Misunderstanding," *Natural History,* October 1987

ROBERT SHEAFFER

Psychic Vibrations

WHILE THE GREAT outburst of UFOria of 1987 has been slowly deflating like a leaking balloon, a few noteworthy UFO-related events have not had the attention they deserve. By this time it seems that practically everyone, believer and skeptic alike, considers the "MJ-12" crashed-saucer documents (see *SI,* Winter 1987-88, and pp. 279-289 of this issue) to be a hoax—except for the small circle of UFOlogists who found and released them. However, UFO-contactee Jennings Fredrick avows their authenticity. In a letter published in James Moseley's semi-legendary *Saucer Smear,* Fredrick claims to have stumbled across a copy of the original document years ago, when he allegedly held a "top secret" security clearance and worked inside a three-foot-thick steel and concrete vault. Not only was the supersecret facility protected by armed guards and vicious guard dogs, but it even had closed-circuit television with "armed scanning lasers, set to kill"! Skeptics, however, remain unconvinced by Fredrick's corroborative testimony, recalling his earlier claimed encounter with "Vegetable Man," a strange alien creature that, when first sighted, was mistaken for a bush. Fredrick reported that the plantlike alien telepathically communicated to him its need for medical assistance, whereupon it used one of its sharp fingers to puncture Fredrick's arm and withdraw a small amount of blood.

Other developments on the UFO front involve the husband-and-wife lecture team of Michael and Aurora El-Legion, who claim to be in telepathic contact with the "Intergalactic Federation." For a number of years they have been making lecture tours around the country, selling books, tapes, and New Age cosmic jewelry, while peddling yarns about their interstellar contacts. Last summer, the pair gave a series of lectures to large audiences at the University of Hawaii, where they showed films of alleged "UFOs from the Pleiades" taken by Billy Meier of Switzerland. Soon thereafter, they were indicted on charges of conspiracy and credit-card fraud. The *Honolulu Star Bulletin* reports that the El-Legions were indicted by a federal grand jury on charges of selling unauthorized telephone credit-card numbers, resulting in a loss of about $500,000 for U.S. Sprint.

In a similar development, the Mutual UFO Network relates that, pursuant to their complaint to the postal authorities,

the International Space Science Foundation has signed a consent decree, agreeing to stop offering for sale through the mails a tape that purports to be of a meeting between space aliens and government officials in a small Texas town. The existence of such a tape (which no one seems to have actually received) no doubt sounded suspicious to MUFON since most of its members believe that the space aliens whose UFO crashed in the desert were already dead by the time they fell into government hands.

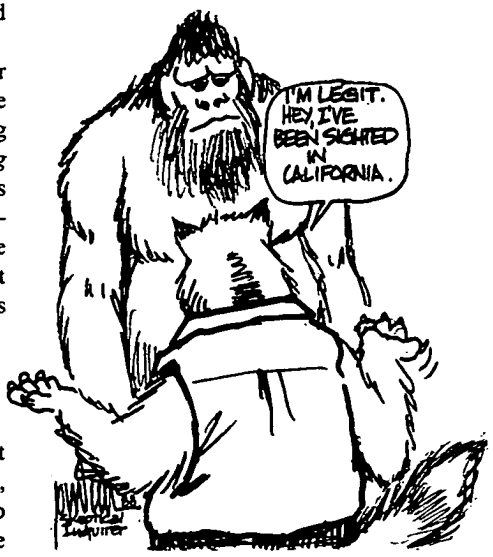
* * * * *

UFOs are not the only bizarre things being reported of late. The *Oakland* (Calif.) *Tribune* reports that people are calling the Fox Broadcasting Company's "Werewolf Hotline" not only to find out about werewolf legends but to report actual *sightings* of such beasts! After Fox premiered its "Werewolf" show last July, it began receiving so many inquiries from viewers that it instituted the toll-free "hotline" in September. There were 346,000 calls in just the first six weeks. Many of the callers claimed to have actually *seen* werewolves in various parts of the country, some even blaming unsolved murders on them.

What is an open-minded researcher to make of all this? Surely *all* of these people cannot be hallucinating or making up stories. (*Credible persons reporting incredible things:* Such were UFOlogy's humble beginnings.) Dragged along reluctantly by the inexorable logic of the situation, I felt forced to conclude that the werewolf must be every bit as real as Bigfoot, or the monster in Loch Ness.

* * * * *

Speaking of Loch Ness, it seems that Nessie has been surfacing once again, although being careful, as always, to choose a place or time so as not to leave behind any evidence that is too convincing. This past July the veteran American monster-chaser Jon Erik Beckjord was in Edinburgh to show his Nessie films taken four years earlier to a meeting of scientists. While there, he met Alexander Crosbie, a retired window cleaner from Inverness, who claims to have had Nessie sightings going all the way back to the 1940s. Crosbie persuaded Beckjord to accompany him back to the Loch for another look, citing his own success at knowing when and where to see Nessie. On the afternoon they arrived, Beckjord left Crosbie with his photographic equipment and went off to rent a car. You can imagine Beckjord's surprise, not to mention personal disappointment, when upon his return Crosbie claimed to have filmed an outstandingly fine apparition of Nessie! "He seems to have a talent for finding the monster," Beckjord remarked enviously. A greatly enlarged print of the monster's head was published in James Moseley's *Saucer Smear,* in which Beckjord claims to see not only the creature's skull-like head, but the faces of several other materialized entities. (We recall that, according to Beckjord, cryptocreatures are actually paranormal manifestations.) However, neither Moseley nor



I, nor apparently anyone else, could discern any pattern or images whatsoever lurking in the highly magnified grains of the photographic emulsion. For the following issue of *Saucer Smear,* Beckjord helpfully supplied a copy of the same print, with the alleged skull-like face sketched in between the grains. However, it still failed to impress anyone. Shifting gears somewhat, Beckjord told the Associated Press that the creature has a catlike face and a body that "looks like a cross between Halley's Comet and the Concorde jet." If you are confused as to whether the face of *Nessiteras rhombopteryx* resembles a skull or a cat, remember that paranormal entities can materialize or dematerialize at will; hence there is no reason to expect them to have the same appearance during each manifestation.

In October, "Operation Deepscan," a small fleet of sonar-equipped boats, probed the depths of the Loch. The expedition, organized by Adrian Shine, a salesman from London, was not solely interested in Nessie, but was also studying the Loch's fish species and underwater currents. They systematically covered the entire Loch with sonar capable of resolving objects as small as four inches. While some underwater objects were detected, which were believed to be floating debris, no monster was found. However, a film was obtained of a rotting tree stump under 22 feet of water. Its shape was virtually identical to the figure in a photo taken in 1975 by the Academy of Applied Sciences, purported to be the gorgoyle-shaped head of the mythical creature. •

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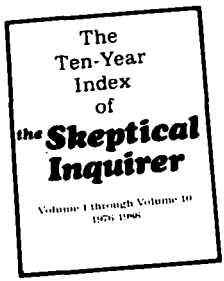

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Neuropathology and the Legacy Of Spiritual Possession

Three brain syndromes—epilepsy, Tourette's Syndrome, and migraine—probably fomented ancient notions of possession and transcendence.

Barry L. Beyerstein

IN AN EARLIER companion article (Beyerstein 1987) I discussed the psychoneural identity hypothesis—that consciousness is strictly tied to the function of individual brains. The strong empirical support for this hypothesis undermines occult beliefs in disembodied minds, "cosmic" consciousness, telepathy, and the like. Research indicates that many mystical or "transcendent" experiences are produced by certain brain states. Some are pathological, others are induced by specific manipulations, and some are occasional spontaneous discharges in otherwise normal brains.

"Transcendence"—consciousness apparently infused with outside spirits or freed to "merge with the universe"—seems profoundly real and insightful, yet ineffable (Fenwick 1983; James 1929; Mandell 1980; Neher 1980). Three brain syndromes whose mental consequences probably fomented ancient notions of possession and transcendence are epilepsy, Gilles de la Tourette's Syndrome, and migraine.

The Sacred Disease

> And one of the multitude . . . said, "Master, I have brought unto Thee my son, which hath a dumb spirit; and wheresoever he taketh him, he teareth him: and he foameth, and gnasheth with his teeth, and pineth away . . . and ofttimes it hath cast him into the fire, and the waters, to destroy him: but if thou canst do any thing, have compassion on us and help us." (Mark 9:17-22)

This anguished father sought exorcism of a demon. Today, we recognize the symptoms of epilepsy. About 400 years before this scriptural account,

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Hippocrates argued in *On the Sacred Disease* that the bizarre sensations, emotions, and behaviors considered to be demonic possession were actually due to a brain disease.[1] Unfortunately, this humane insight has continued to be swamped by superstition.

Astonishingly, even today, many share the ancient Romans' fear that epilepsy can be absorbed by touch or by sharing a cup. In Rome, epileptics were banished from their families and spat upon in the streets to ward off demonic contagion. The Roman view of disease as divine retribution made all invalids somewhat blameworthy,[2] but epilepsy was especially shameful and repulsive because demonic presence was assumed.

With its mix of physical and psychological symptoms, epilepsy, more than any other disease, has pitted naturalistic against magical schools of thought:

> As soon as a rational [system of] pathology was established claiming to explain all diseases as merely physical processes, explanation of epilepsy became a test for the validity . . . of the whole system. Accordingly, the history of epilepsy becomes . . . an example of the history of magical beliefs and their refutation by . . . scientific physicians. (Tempkin 1971, p. 4)

Twenty-four hundred years after the Hippocratics denounced supernatural conceptions of epilepsy, sufferers still face discrimination from would-be spouses, employers, and landlords and from insurance, licensing, and immigration agencies (Schneider and Conrad 1983, p. 45). It has only been since 1959 that epileptics have been permitted to join the U.S. Civil Service and since the mid-1970s that Canada would accept them as immigrants. In a recent poll, 53 percent of respondents said they would discourage their children from marrying an epileptic and 5 percent wouldn't even permit one to live in their neighborhood (Ries 1977).

Strangest of all, in an age when most mental and behavioral symptoms of epilepsy are treatable (Adams 1977a; Barnes 1986; Penry 1975), so-called "fits" continue to nurture archaic possession myths. In 1978, two West German priests and the parents of an epileptic were convicted of causing her death in a brutal 11-month exorcism. (They received suspended sentences.) The local bishop, citing Jesus' admonition that demons can only be expelled by fasting and prayer (Mark 9:29), authorized starving 23-year-old Anneliese Michel, who weighed only 68 pounds at the time of her death (*Vancouver* [B.C.] *Sun,* March 28, 1978). Her epilepsy could have been treated and her life saved as late as a week before her demise.

Characteristics of Epilepsy

Many different genetic, medical, biochemical, and environmental factors can cause "seizures" of diverse kinds and severity (Adams 1977a; Barnes 1986; Goldensohn 1975; Pincus and Tucker 1978). They may be a once-in-a-lifetime reaction to high fever or drug overdose or recur every few minutes due to a tumor or scarring in the brain.

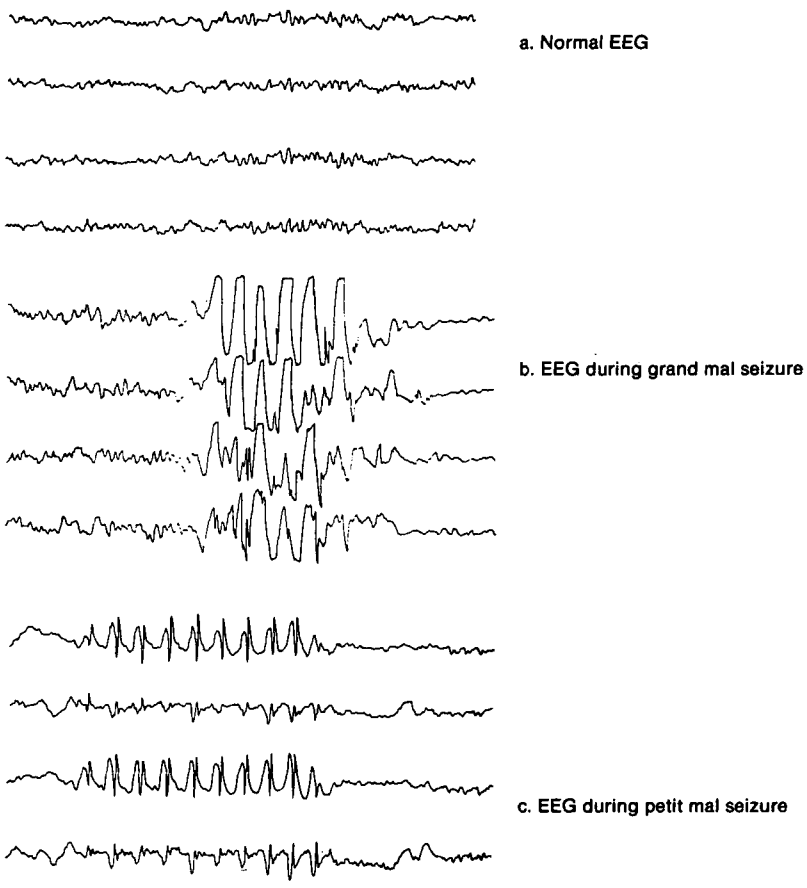


FIGURE 1. Electroencephalograms (EEGs) of a normal adult and during grand mal and petit mal seizures.

What all seizures have in common is a disorderly, paroxysmal neural discharge that produces distinctive "spiking" on the EEG (Figure 1). This may be restricted to a small region or may engulf the entire brain. When, for whatever reason, neurons in an "epileptic focus" begin to pulsate in unison they recruit adjacent cells in an ever-widening net until a full-blown seizure ensues. Activated thusly, these neurons exert their customary mental or behavioral effects, however inappropriate this may be.

Grand Mal and Petit Mal Seizures. The best-known form of epilepsy, the grand mal convulsion, begins with a cry, collapse, and unconsciousness. As the electrical firestorm sweeps through the motor cortex (Figure 2), rigidity and thrashing ensue as muscles are activated indiscriminately throughout the body. Oral spasms cause protrusion of the tongue and foaming at the mouth; respiratory paralysis produces a bluish pallor. Incontinence is also common.

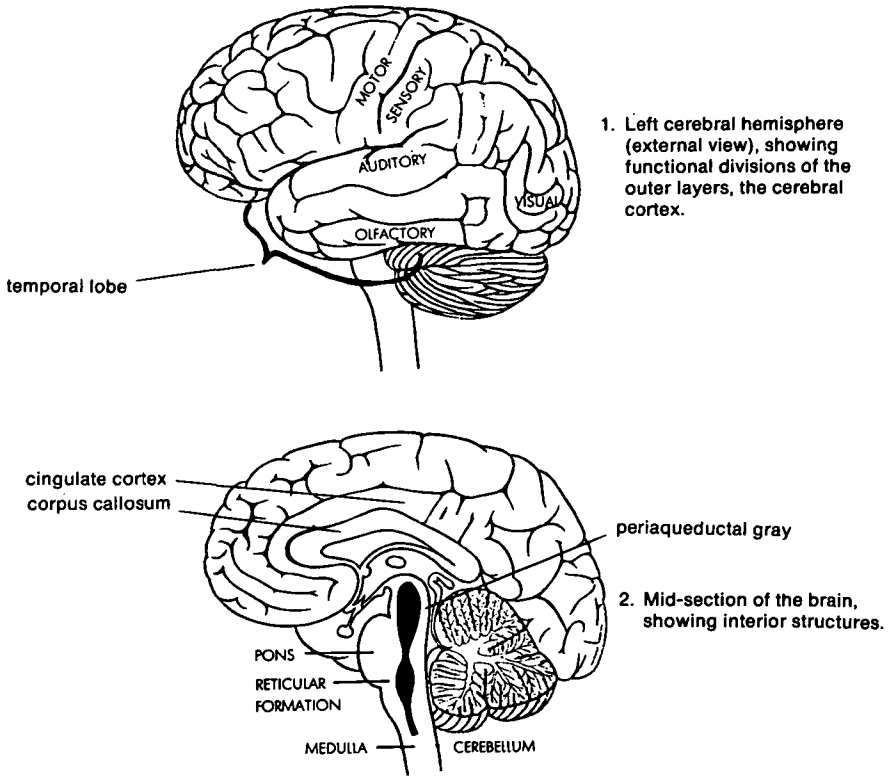


FIGURE 2. *Exterior and interior views of the human brain.*

After a minute or so, the convulsion subsides into a coma lasting up to half an hour. It is easy to see why victims and onlookers alike would invoke supernatural causes for such an awesome ordeal.

But epilepsy need not be this dramatic. Petit mal seizures result from epileptic discharges in the reticular system (Figure 2b), which controls the arousal and attentional status of the brain. The result may be little more than rhythmic eyeblinks and a temporary loss of consciousness. This "absence" can be so brief as to go unnoticed, even by the victim.

Psychomotor Seizures. If the paroxysmal discharge is centered in subcortical regions, particularly the limbic system (MacLean 1970; Vilenksy, Van Hoesen, and Damasio 1982) of the temporal lobes (Figure 3), the effects appear to be coordinated, intentional actions. Nonetheless, during a "psychomotor seizure" (lasting from a few seconds up to several hours), behavior is automatic and beyond environmental control. Stored behavioral programs are being "read out" from motivational and emotional units of the brain. This "readout" can be violent or sexual, though usually it is not. The unintentional and irresistible character of psychomotor seizures favors the victim's

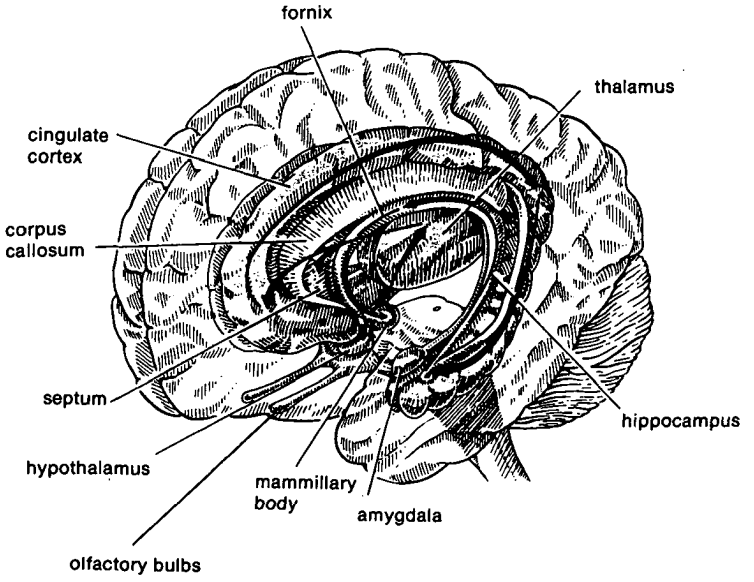


FIGURE 3. The limbic system.

assumption that an invisible entity has suddenly arrogated his will. The word *epilepsy* is derived from the Greek verb meaning "to lay hold of."

The Epileptic Aura. With respect to occultism, the "aura" preceding seizures is of particular interest.[3] Contact with the environment is not yet lost, but it seems distant and unreal. Visual, auditory, somatic, and olfactory hallucinations interweave with veridical percepts. New surroundings may seem peculiarly familiar (déjà vu) or frequented places may seem novel (jamais vu). Auras are often fearsome and foreboding, but they can also be ecstatic. Divine, diabolical, or natural interpretations variously appeal to different personalities and social/educational backgrounds.

Some people experience auras that never progress to overt seizures. "Hearing voices" or "seeing visions" with strong emotional overtones could well seem supernatural, even to those who would attribute overt epilepsy to natural causes. The brain registers the apparent origin of such self-generated sensations as external (Mandell 1980). Feeling the "presence" of God, angels, Satan, the Virgin Mary, departed loved ones, and so on, is a recurrent theme in both the occult and epileptic literatures.

Because of the limbic system's role in evaluating the novelty and emotional significance of experiences (Vilensky, Van Hoesen, and Damasio 1982), short-circuits therein can affect perceived familiarity and imbue minutiae with cosmic importance. Electrical stimulation of the temporal lobes during neurosurgery produces dreamy, auralike effects: déjà vu, awe, and portentiousness; estrangement from the body; compulsive repetition of thoughts and behaviors

(Adams 1977a; Chatrian and Chapman 1960), as well as extremely lifelike hallucinations (Penfield 1958). According to Persinger (1983):

> . . . Widespread . . . stimulation [of the temporal lobe] evokes fear . . . and general anxiety . . . , more subtle stimulation evokes intense meaningfulness and peak experiences; the latter are often in conjunction with altered body perceptions, such as out-of-body experiences . . . or convictions of cosmic consciousness.

Our sense of "self" is a complex inference based on continually updated body sensations, external percepts, and time cues. When brain mechanisms integrating these cues with memories are disrupted by disease, sensory overload, psychotropic drugs, and so on, the self seems to lose its physical boundaries. Psychologists call this "depersonalization" or "ego dissolution"; to mystics it is "oneness with the universe."

Interestingly, auras often include olfactory hallucinations, ranging from the reek of putrefying flesh to an ineffably fragrant breeze. Tales of the stench of "hellfire and brimstone" and the perfumed atmosphere of paradise probably owe something to the fact that the limbic system evolved out of primitive olfactory tissue. Much folklore on satanic visitations may have derived from the propensity of limbic seizures to produce visceral sensations of revulsion, including vomiting (Mitchell, Greenwood, and Messenheimer 1983), along with terror and foreboding. Persons allegedly abducted by extraterrestrials also typically describe olfactory, emotional, and visceral experiences that are quite consistent with temporal-lobe abnormalities.

For more fortunate epileptics, whose pathology is probably in a slightly different part of the limbic circuit, symptoms may include spontaneous episodes of transcendent joy. Dostoyevsky (himself an epileptic) described this dissolution of conflict and feeling of total unity in *The Possessed:*

> . . . When you suddenly feel the presence of external . . . harmony it is clear, indisputable, absolute feeling. . . . You suddenly perceive the entirety of creation. . . . It is a joy so great that, even if it were to last more than five seconds, the soul would not endure it and it would fade away . . . and for that I would give my whole life and not think I was paying too dearly.

Temporal Lobe Epilepsy and Personality. It is apparent that seizures produce sensations and automatisms like those ascribed to "possessions" and their high-tech variants, extraterrestrial "abductions," but do they also have consequences between attacks? David Bear (1979), noting the effects of limbic damage in animals, suggested that prolonged epileptic stimulation might alter limbic connections, producing characteristic emotional, motivational, and cognitive traits between seizures. The "religiosity" of temporal-lobe epileptics (TLEs) has been recognized by neurologists since the 1800s (Dewhurst and Beard 1970).

Comparing TLEs with control patients, Bear (1979) found TLEs easily distinguishable by their humorlessness, excessive moral zeal, and tendency to

find profound meaning in mundane events. They were obsessed with details and often kept voluminous diaries, intending to work them into great metaphysical tomes. Their preoccupation with idiosyncratic religious, mystical, and cosmological speculation was invested with a strong sense of divine guidance and personal destiny. Repeated conversions were common, as was suspicion of those who failed to grasp the truth of their revelations. The particular symptoms varied with left- or right-hemisphere location of the epileptic focus. Other common TLE symptoms are a drastically reduced interest in sex (Blumer and Walker 1967) and a tendency to withdraw from human contact in general (MacLean 1970).

Though Fenwick (1983) reports difficulty finding some of these traits in his patients, Bear's observations concur with my own. A serviceman I met on a recent transcontinental flight was a classic case: Hardly waiting to buckle his seatbelt, he announced he'd had an abrupt religious conversion (during a seizure prior to removal of a temporal-lobe tumor). He said God had personally afflicted him, then cured him, diverting him from wickedness to saving souls. Totally bereft of humor, he informed me he had divorced his wife because "she suddenly became obsessed with sex." As a personnel officer, he claimed to have memorized the serial numbers, social insurance numbers, and boot sizes of every member of his regiment and that he was transferring soldiers around Canada to fill gaps in chapel choirs. Asked if he had recorded this epic, he produced three rucksacks crammed with notebooks, all filled with rhyming couplets!

While the foregoing does not imply that all religious and mystical fervor is of pathological origin (Deikman 1977), Bear's typology is reminiscent of the cadre of solitary visionaries, prophets, and harmless cranks that have always populated the margins of society. It also matches the behavior of many historical figures whose conviction and grandiosity have attracted large followings, not always with salutary outcomes.

A few of the charismatic figures thought to have had epilepsy include the emperors Julius Caesar, Caligula, and Claudius, several pharaohs, Alexander the Great, Napoleon, Buddha, Muhammad, St. Paul, St. Teresa of Avila, and Emanuel Swedenborg. Historically, the few epileptics of high birth or conspicuous talent, or whose messianic vision infected others, were revered as divinely chosen. Most, however, met persecution, often death.

The probable contribution of epilepsy to religious dogma is not confined to antiquity, as seen in the recent controversy surrounding the Seventh Day Adventist prophet, Ellen White (1827-1915). Her "visions," accepted by the faithful as divinely inspired, revealed that wigs cause insanity, masturbation is fatal, and certain races derived from intercourse with lower animals. Compounding earlier accusations of rampant plagiarism (Ostling 1982), Delbert Hodder, a physician and practicing Adventist, uncovered indications that White's "spells" were of epileptic rather than heavenly origin (Clapp 1982). Her deep religiosity and other TLE signs followed a serious head injury at age nine. Seizurelike aspects of her "visions" included vivid percepts and emotions, with eyes open and rolled upward, and monotonously repeated

phrases and gestures interspersed with exhortative cries. Her sense of divine guidance, apocalyptic fervor, and the sheer volume of her writings (more than 50 books) reinforce the diagnosis. Predictably, Adventist officials have charged revisionists and doubters with satanic influence (*Christianity Today*, November 20, 1981).

Temporal-Lobe Instability in Nonepileptics. Persinger (1983) suggests that "microseizures" (occasional electrical aberrancies in the temporal lobes) could produce milder versions of the profound meaningfulness, divine peace, and so on, felt by TLEs. The complex feedback circuitry of the limbic system makes it prone to oscillatory (i.e., epileptiform) activity. In susceptible persons, this reverberation could be triggered by "the chemical consequences of personal crisis, anxiety, hypoxia, hypoglycemia, and fatigue" (Persinger 1983). Between attacks, these people would be more normal than TLEs but might still share some of their characteristics. Among unselected college students (Persinger 1984), those reporting dramatic mystical, religious, or paranormal experiences (e.g., divine presence) scored significantly higher, though still within the normal range, on tests of temporal-lobe dysfunction. They were also more likely to keep diaries.

While it cannot be proved retrospectively that any experience of possession, conversion, revelation, or divine ecstasy was merely an epileptic discharge, we must ask how one differentiates "real transcendence" from neuropathies that produce the same extreme realness, profundity, ineffability, and sense of cosmic unity. When accounts of sudden religious conversions in TLEs are laid alongside the epiphanous revelations of the religious tradition, the parallels are striking (Dewhurst and Beard 1970). The same is true of the recent spate of alleged UFO abductees. Parsimony alone argues against invoking spirits, demons, or extraterrestrials when natural causes will suffice.

Brain States, Intense Emotion, and Conversion

If neuropathology can trigger mystical/transcendent feelings, are there other ways to produce them in normal people? Social, psychological, physical, and dietary manipulations can affect limbic function. Many political and religious rituals manipulate sensory input, emotional arousal, attention, movement, and fatigue to alter consciousness. Rhythmic visual, auditory, and motor activity can entrain neural firing to induce seizurelike effects (Neher 1980). Resulting dissociative states probably underlie a variety of possession, exorcism, and conversion phenomena (Bourguignon 1976; Hilgard 1977; Kenny 1987; Klein 1979; Neher 1980; Sargant 1957, 1973; Zusne and Jones 1982).

Sargant (1957, 1973) found that numerous practices used since ancient times to promote religious and political conversions employ techniques that affect brain chemistry: (*a*) induction of stress, fear, and arousal interspersed with sudden relief; (*b*) rhythmic sensory bombardment, e.g., music, chanting, and dancing; (*c*) hyperventilation; (*d*) food, water, and sleep deprivation; and (*e*) physical exhaustion. Observing rallies, revival meetings, tribal dancing,

voodoo rites, and so on, around the world, Sargant (1973) admitted that his academic understanding and attempted detachment offered limited protection against their alluring effects:

> I was now beginning to understand better how Hitler, for instance, had been so successful in using mass rallies, marching and martial music, chanting of slogans, and highly emotional oratory and ceremony, to bring even highly intelligent Germans into a condition of intellectual and emotional subjection. (p. 143)

The cathartic climax of all such rituals lends apparent supernatural validation to the indoctrination.

"Kindling" and Conversion. The durability of personality changes after "conversions" is undoubtedly due in part to revised self-perception, but there is also possibly a neural contribution. Repetitive neural excitement can leave nerve tracts permanently easier to activate in the future—thus seizure-related conscious alterations can become self-perpetuating.

Kindling (Gaito 1976) was first demonstrated in animal brains stimulated with electrical pulses that were too weak initially to elicit seizures. Over successive days, this previously innocuous stimulation became capable of triggering seizures. Limbic circuits are particularly prone to kindling (perhaps a by-product of their involvement in encoding memory traces). We have seen that ritualized breathing, chanting, dancing, and so on, can produce epileptiform activity. Pulsatile neural firing, whether from rhythmic activities, drugs, or untreated epileptic foci, may set the stage for the lasting personality alterations of Bear's temporal-lobe syndrome, Persinger's temporal-lobe "instability," Sargant's conversion phenomena, or even occasional LSD "flashbacks."

Similarities in effects of psychotropic drugs, temporal-lobe seizures, conversion rituals, and certain hypnotic, meditative, and psychotic states have been apparent to many observers (Hilgard 1977; James 1929; Mandell 1980; Persinger 1983, 1984; Sargant 1957, 1973). Mandell (1980) has reviewed research suggesting there is a common brain mechanism affected by all transcendence-inducing conditions. He implicates the biogenic amine neurotransmitters (norepinephrine, dopamine, and serotonin) that control excitability of limbic structures. Brain levels of biogenic amines are affected by genetics, drugs, and a host of stressors and other environmental conditions.

Various routes to transcendence share the ability to reduce serotonin activity in limbic pathways, "disinhibiting the temporal lobes and leading to synchronous [i.e., epileptiform] discharges in temporal-lobe limbic structures" (Mandell 1980, p. 392). Isolated hippocampal (Figure 3) discharges produce only conscious aberrations. If the adjacent amygdala is also involved, psychomotor seizures are generated.

Tourette's Syndrome

A condition that probably contributed much to our cultural stereotype of demonic possession is the rare neurological disorder Gilles de la Tourette's

Syndrome (Friedhoff and Chase 1982; Shapiro and Shapiro 1983). Named after the French physician who described it in 1885, it parallels the behavior of the "possessed" girl in the movie *The Exorcist.* Often misdiagnosed as schizophrenia, Tourette's Syndrome (TS) symptoms also match many depictions in the *Malleus Maleficarum* (Witches' Hammer), the fifteenth-century inquisitors' manual for detecting witches (Kramer and Sprenger 1971).

The mean age of onset for TS is approximately seven years; males outnumber females three to one (Devinsky 1983). Initial symptoms are involuntary facial "tics," grimaces, and upward eye-rolling ("transmogrification" in occult lore), progressing to spontaneous vocalizations, such as throat-clearing, grunts, growls, shrieks, and barks. The prominence of animals in demonology is probably no accident (cf. Kramer and Sprenger 1971, pp. 122-124).

About 60 percent of TS cases exhibit verbal outbursts of a sexual, scatological, or blasphemous nature. "Forbidden" sexual, aggressive, or sacrilegious thoughts intrude, along with the feeling that verbal expression will dissipate the pressure to act them out. The sensation of some perverse entity "pulling the strings" adds dread to bewilderment.

The possession hypothesis gains from the fact that TS sufferers, between attacks, show normal intelligence, emotions, and sense of reality. Some have been able to maintain high stations despite occasional obscene or animalistic outbursts. A prince of the court of Louis XIV used to suppress involuntary barking by stuffing things in his mouth (Shapiro and Shapiro 1983). A fascinating case of suspected TS was that of Dr. Samuel Johnson (1709-1784) (Murray 1982). Though twice denied teaching positions because of his bizarre contortions and vocalizations, his wit and eloquence dazzled London's intellectual and social elite. "Eccentricities" of the powerful are often perversities in their underlings.

There are suggestions that supersensitivity of the brain's dopamine receptors might cause TS (Devinsky 1983) and that this might be genetic (Jenkins and Ashby 1983). The dopamine blocker haloperidol offers symptomatic relief, but there is as yet no cure. The Shapiros (1983) report, not surprisingly, that none of their TS patients who turned to exorcism found relief.

Given the emotional and motivational character of TS symptoms, attention has centered on limbic mechanisms in the search for pathology. Because of its involvement in social and emotional vocalizations in primates, the periaqueductal gray region (Figure 2b) is a prime candidate. Another limbic component, the cingulate cortex (Figure 3) has been implicated in the involuntary movements of TS (Bonnet 1982). Pitman (1983) suggests that an inherited chemical imbalance in these evolutionarily old areas of the brain may allow expression of primitive instinctual urges normally restrained by higher centers.

Migraine and Supernatural Beliefs

Many readers, unfortunately, will be personally familiar with the following description by Aretaeus, a Greek physician of the second century A.D

> An illness by no means mild . . . [it] occasions unseemly and dreadful symptoms . . . nausea and vomiting of bilious matters; collapse of the patient. . . . There is much torpor, heaviness of the head, anxiety; and life becomes a burden. For they flee the light; the darkness soothes their disease; nor can they bear readily to look upon or hear anything pleasant. . . . The patients are weary of life and wish to die. (Quoted in Sacks 1970, p. 23.)

Migraine is the most prevalent of all neurological disorders, affecting 5 to 10 percent of the population. Its onset, an aura that can resemble that of epilepsy, was also described by Aretaeus, whose contemporary, Pelops, first applied the term *aura* to seizures. Migraine auras begin with vague premonitions of unease, followed by a kaleidoscope of visual and other sensory disturbances lasting half an hour or more (Adams 1977b; Richards 1972; Sacks 1970). Numbness and tingling of lips, face, and extremities coexist with mental confusion, arrested speech, weakness, drowsiness, and dizziness. Terrifying or rapturous trancelike states and other limbic symptoms (olfactory hallucinations, déjà vu, ineffability, portentiousness, depersonalization, etc.) are also reported (Sacks 1970, p. 98).

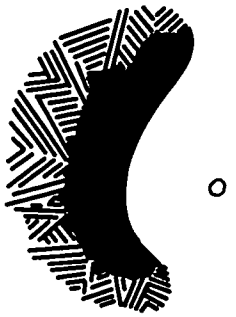
As the aura recedes, an excruciating headache follows, throbbing with each heartbeat. At its peak, there may be nausea and vomiting. Typically the pain and disorientation last several hours, but durations of several days are not uncommon.

Migraine auras are caused by spasms in cerebral arteries, leading to neurochemical changes in blood-starved cortical regions. As this vasoconstriction reverses, rebounding bloodflow stretches artery walls, initiating the terrible pain. It is generally agreed that susceptibility to migraine is inherited, but psychological, hormonal, dietary, and allergic factors have been suggested as possible "triggers" in those at risk.

Visual Phenomena of Migraine. The first inkling of an attack is usually a small "fuzzy" crescent in the visual field. This blind region typically enlarges, bounded by scintillating "zig-zag" lines (Figure 4). These are called "fortification illusions," as they resemble old battlements (Richards 1972). Objects in the visual field can suddenly change color, grow, shrink, or disappear completely.

Through the ages, skilled observers have recorded their experiences of migraine (Richards 1972; Sacks 1970). Whether they seemed natural or transcendent varied with the individual and the era. Exquisite depictions of "visions" we now recognize as migraine effects were left by Hildegard of Bingen, a twelfth-century mystic nun. She considered her visions a divine calling. In the dazzling showers of flashing light, brilliant halos around objects, and fortification patterns, she saw angelic hosts and glimpses of the city of God (Figure 5). As Sacks (1970, Chap. 3) reflects:

> [Hildegard's visions] provide a unique example of the manner in which a physiological event, banal, hateful, or meaningless to the vast majority of people, can become, in a privileged consciousness, the substrate of a supreme ecstatic vision.



"Fortification patterns" surrounding a crescent-shaped scotoma, or blind area. The "O" represents the point of fixation of the person's gaze. The zig-zag patterns flicker and are interspersed with colored areas as the affected area of the visual field expands. Between 10 and 20 minutes are required for the pattern to expand from the fixation point to the edges of the visual field as shown below.

Enlargement of the migraine scotoma over time, as drawn by the physician Hubert Airy about 1870. "O" is the fixation point of the person's gaze.

FIGURE 4.

In more recent times, migraines have provided a different sort of inspiration for the scientifically curious. By the 1870s, the British Astronomer Royal, G. B. Airy, could depict perceptions similar to Hildegard's but speculate intelligently on possible brain mechanisms that could generate them. Study of migrainous visual anomalies has suggested valuable clues about the organization of the visual cortex (Richards 1972).

As with epilepsy, some migraine sufferers experience the aura without succumbing to the devastating attacks. Contributions of these spontaneous warps in the fabric of consciousness to the mystical world-view are probably considerable.

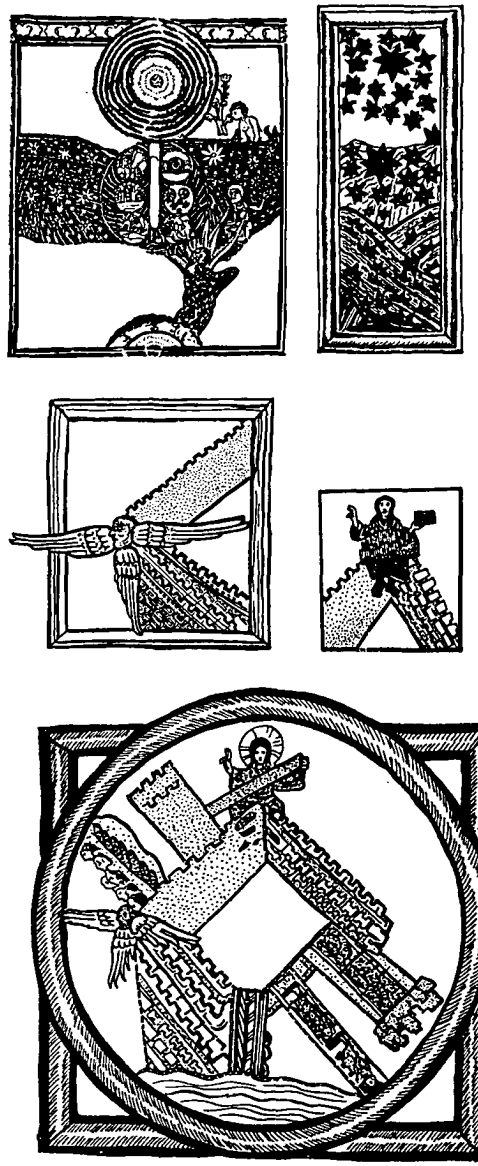


FIGURE 5. Portraits of her migrainous visions from a manuscript by the mystic Hildegard of Bingen (1089-1180). Showers of shimmering stars, fortification patterns, etc., are depicted as radiating from a central spot.

The Limbic System and Transcendence

Different cultures and personalities embellish the basic experience of the same neural phenomena in various ways. The means of achieving temporal-lobe hyperactivity and its subjective effects are quite diverse. The experiences modern neuroscience attributes to common origins have been variously described: "the mystical experience" (William James), "the peace that passeth understanding" (St. Paul), "peak experience" (Abraham Maslow), "inner light" (the Quakers), "the absolute Tao" (Lao Tse), "satori" (Zen), "sahmadi" (Yoga), "moment of truth" (Harvard undergraduate on LSD), "the dawning of a new world" (Gordon Wasson on "magic" mushrooms), "divine intuition" (William Blake). Asked after experiencing LSD if these were all the same, religious philosopher Alan Watts replied, "Embarrassingly so" (Mandell 1980, p. 439).

Notes

1. In fact, this oldest extant text on epilepsy was probably authored by several of the master's anonymous students. It details many magical beliefs of ancient Greece and asserts that both normal and abnormal psychological functions reside in the brain.

2. Epilepsy was considered by the Romans to be punishment by the moon goddess. Superstitions persist that it can be "caught" by standing in the light of a full moon and that seizures are more prevalent during the full moon.

3. "Aura" is derived from the Greek word for "wind" as a sufferer described it to the ancient physician Pelops. This is not to be confused with the highly suspect "aura" of colored light psychics claim surrounds people and changes with mood, health, etc. (cf. Neher 1980, pp. 186-191).

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This article and the following one continue the discussion and examination of "alien-abduction" claims begun in our recent Fall and Winter issues.—EDITOR

The Varieties of Alien Experience

The folklorist's perspective provides insight into recent and past reports of the 'alien-abduction' experience.

Bill Ellis

SCHOLARS WHO study the folklore of past and present cultures may have some useful perspectives to offer about the many recent reports of abduction by aliens. At the conclusion of his review of Whitley Strieber's *Communion,* Ernest H. Taves (1987) suggests that either Strieber is mentally ill or he is consciously perpetrating a hoax, "playing a joke on his readers." Taves then invokes Occam's Razor to opt for the latter and tacitly pare away any other alternative. (Taves may be correct, but he is not logical. Occam's Razor is a method for analyzing alternatives and choosing the simplest explanation that will explain the evidence. It cannot be used to eliminate alternatives without analysis.) Robert A. Baker (1987-88) suggests a far simpler explanation: that Strieber is a fantasy-prone personality sincerely describing what he believes he remembers. From the perspective of psychology, Baker suggests several recognized and well-understood mechanisms for such "memories," including hypnogogic hallucination, confabulation, and inadvertent cueing by the hypnotist (the "Clever Hans" phenomenon in yet another form).

Folklorists familiar with accounts of supranormal experiences can, however, suggest two additional mechanisms at work: one may explain Strieber's experience; the other certainly accounts for his actions since his "abduction."

1. On October 4 and December 26, 1985, Strieber may have actually experienced an event, common to many other cultures and individuals, in which he felt paralyzed and then believed he was levitated and subjected to indignities by nonhuman agents.

2. Whether Strieber experienced this event or not, he did undergo, during the period from January to March 1986, an experience identical to that of religious conversion.

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Collections of legends and folktales, both European and otherwise, contain a variety of "real life" accounts that contain close parallels to elements of modern abduction stories. Most of these are anonymous, migratory tales that have no weight as evidence. Some, however, contain alleged firsthand experiences. Strieber himself notes these parallels and cites them as support for the "reality" of his abduction. The more carefully recorded cases, however, make it clear that these earlier abductions, like Strieber's, were subjective in nature.

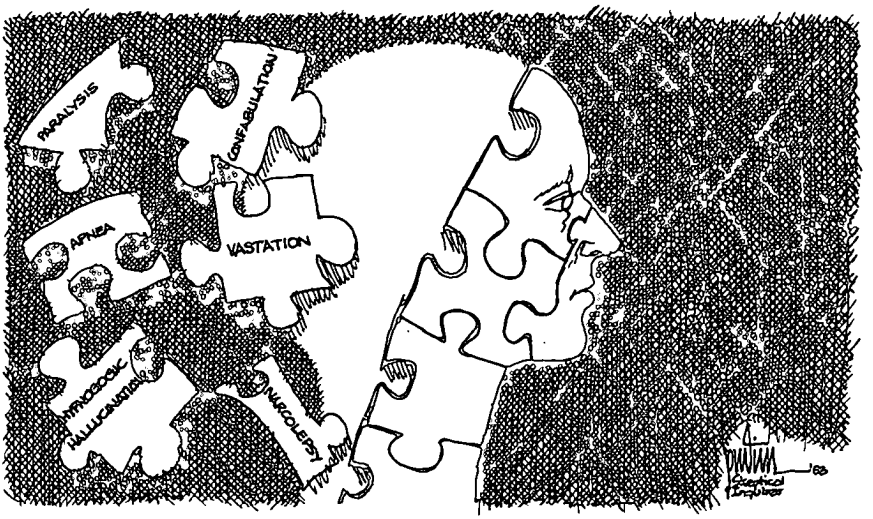
Anne Jeffries (ca. 1626-1698), an illiterate country girl from Cornwall, was one such celebrated abductee. In 1645 she apparently suffered a convulsion and was found, semi-conscious, lying on the floor. As she recovered, she began to recall in detail how she was accosted by a group of six little men. Paralyzed, she felt them swarm over her, kissing her, until she felt a sharp pricking sensation. Blinded, she found herself flying through the air to a palace filled with people. There, one of the men (now her size) seduced her, and suddenly an angry crowd burst in on them and she was again blinded and levitated. She then found herself lying on the floor surrounded by her friends.

Significantly, the accounts note that the experience left her ill for some time, and only after she regained her health did she "recall" this experience. Still, like Strieber, Jeffries claimed that this encounter was followed by further contacts with the "fairies," and she was taken seriously enough by the local authorities in 1646 to be arrested for witchcraft and imprisoned (Briggs 1971, pp. 176-177; Briggs 1976, pp. 239-242).

A more recent incident, with some connections to Strieber's alleged experience, was reported by theologian Henry James, Sr. One afternoon in May 1844, relaxing in his chair, James suddenly felt the presence of some invisible, ineffably evil being squatting in the room with him. Rationally, he recognized that his emotion "was a perfect insane and abject terror, without ostensible cause"; still he found himself completely paralyzed while (as in Strieber's October 4 experience) his mind was flooded with images of "doubt, anxiety, and despair" (Edel 1953, p. 30). The senior James eventually found release in the fringe religion of Swedenborgianism, while his sons dealt with the impact of this experience in their own ways. William James provided one of the first rational anatomies of paranormal encounters in *The Varieties of Religious Experience;* Henry James, Jr., dealt with the lingering threat of such events in his fiction, ranging from *The Turn of the Screw* to "The Jolly Corner," both of which contain suggestive parallels to *Communion.*

Some light has been thrown on such experiences by folklorist David Hufford. In Newfoundland, he found, the term "Old Hag" referred to a fairly common phenomenon in which a person who is (as Strieber was on October 4 and December 26) relaxed but apparently awake suddenly finds himself paralyzed and in the presence of some nonhuman entity. Often the sensation is accompanied by terrifying hallucinations—of shuffling sounds, of humanoid figures with prominent eyes, even (rarely) of strange, musty smells. Often the figure even sits on the victim's chest, causing a choking sensation.

Like Baker, Hufford at first assumed that the consistencies present in



victims' accounts of the Old Hag could be explained by previous exposure to oral traditions—the "cultural source hypothesis." It is interesting, though, that when he moved his base of research to the United States, Hufford (1982, p. 245) found the experience just as common here as in Newfoundland—affecting perhaps more than 15 percent of the population. Despite the absence of a folk tradition naming and explaining it, many of the specific details of the Old Hag hallucination recurred in victims' experiences, leaving them profoundly confused and reluctant to talk for fear of ridicule. Hence the phenomenon remains largely unstudied by psychologists and practically unknown (as a general phenomenon) to the general public.

Surveying the psychological and psychiatric literature relating to the experience, Hufford found no evidence that the Old Hag was linked to neurological or psychotic illnesses. During this event, evidently, the brain functions as if asleep, producing the characteristic paralysis and apnea; hence it is similar to the hypnogogic hallucination (Baker 1987-88). The peculiar stability of the hallucinations' content across cultural boundaries and in the absence of traditions concerning it, however, remains unexplained. Hufford suggests that the most likely explanation is that the Old Hag might be the side-effect of a documented but poorly understood derangement of the sleep pattern, akin to narcolepsy.

Strieber's October 4 visitation, along with the similar experiences of paralysis and physical manipulation reported by many abductees, might be explained by some form of abnormal sleep pattern, producing a distinctive set of hallucinatory events. Future studies need to focus carefully on the phenomenology of such events, which may reveal genuine correspondences among "abduction" events. In this regard, the main value of Strieber's book to folklorists is that much of it was committed to writing soon after the

experiences themselves. The interpretations accepted after the fact by the victim (or imposed on him by others) are of less value, as they tend to force the details of the experience into a culturally acceptable mold.

On the other hand, it is not necessary to assume that a neurological experience could provoke detailed memories of abduction. Strieber may have confabulated either or both experiences; we cannot tell for sure. Nevertheless, there is no question that early in 1986 Strieber underwent a quasi-religious conversion, assisted (probably innocently) by Budd Hopkins and his analyst, Robert Klein.

The classic process of indoctrination is described by William Sargant (1961): When the human nervous system is stimulated beyond its normal capacity ("transmarginally") for long periods of time—either deliberately by agents wanting to indoctrinate a person or unintentionally by the person undergoing a lengthy period of psychological stress—it eventually begins to operate in paradoxical ways. Typically, the individual begins to over-respond to weak stimuli; ultimately, his or her previous thought and behavior patterns begin to change and a state of hysteria results, during which the individual is highly susceptible to new concepts and philosophies. It is unrealistic, Sargant warns, to expect a person to resist the process of conversion once it has begun. Even recognition that one is being indoctrinated, he notes, may not delay breakdown.

This process has been institutionalized in the religious rites of many cultures (Turner 1969), and the pattern frequently occurs in the narratives of "born-again" Christians (Clements 1982). Strieber's account of events, evidently based on a journal kept before and during his hypnotic sessions, is structurally identical to such narratives. In January we find him in psychological disarray, alienated from his wife, unable to read or write, and suffering from a variety of physical symptoms. At this point, Strieber tells us, images began to float into his mind. In a state of extreme suggestibility, then, Strieber began reading and talking to friends about UFOs, a process climaxing with his discovery of an account of an abduction experience that contained some minor correspondences with the images he was "recalling."

This point of contact evidently led to a psychological crisis a few days later:

> . . . I was sitting at my desk when things just seemed to cave in on me. Wave after wave of sorrow passed over me. I looked at the window with hunger. I wanted to jump. I wanted to die. I just could not bear this memory, and I could not get rid of it. (Strieber 1987, p. 40)

At this precise moment, Strieber contacted Hopkins, who gave him assurances that his memories were indeed similar to those of others. Strieber wept in relief and "went from wanting to hide it all to wanting to understand it." Then Hopkins introduced the idea of looking for a previous encounter, and Strieber—for the first time—began to look at the October 4 events as possibly paranormal. Given this task, Strieber left this interview "a happy man" (Strieber 1987, p. 41).

Sargant's research leaves little doubt that Strieber was, when he contacted Hopkins, transmarginally excited. Loss of sleep combined with obsessive, uncontrollable thought patterns "overloaded" his brain and left him susceptible to the slightest idea that would give his anxieties a licit avenue. Further, the extreme significance put on small details—the slim correspondences that suddenly seem concrete proof of the visitations' reality—exhibits the paradoxical phase of this process. In Strieber's words, "There did seem to be a lot of confusion . . . and perhaps even an emotional response on my part greatly out of proportion to what seemed a minor disturbance" (Strieber 1987, p. 51).

"Strieber may have fallen into the abductees' camp to find convenient cultural language for a psychological event that otherwise would have to be labeled 'fraud' or 'madness.' "

It is not surprising that the hint provided by Hopkins led to the intense moment during Strieber's first hypnosis session in which he suddenly "remembered" the little man by his bed and responded with 20 seconds of prolonged screams. This reaction, common to many other hypnotized "abductees," represents the moment of abreaction, in which the convert's pent-up emotions are released in a controlled way through emotionally reliving the event that the indoctrinator (in this case, Hopkins) has suggested actually caused the anxieties.

This process has been used therapeutically since World War II to treat stubborn cases of battle shock and trauma. Significantly, Sargant reports, it was found that it was not necessary to make the patient recall real-life incidents. Rather, "it would often be enough to create in him a state of excitement analogous to that which had caused his neurotic condition and keep it up until he collapsed; he would then start to improve. Thus *imagination would have to be used in inventing artificial situations, or distorting actual events. . . .*" (Sargant 1961, p. 51; emphasis added).

Recognizing this pattern in *Communion* explains why Strieber acts less like a playful hoaxer than a religious convert. Indeed, judging from psychological tests, the conversion experience largely restored his mental health, dispelling his self-destructive tendencies and restoring his writing abilities. Further, Strieber was left with the status of a "chosen one" and a mission whose quasi-religious nature is explicit in the book's title.

From a folklorist's perspective, the two alternatives are not mutually exclusive; indeed, a confusing neurological attack may require a conversion experience to dispel the anxiety produced. Henry James, Sr., we note, took the first steps toward regaining his mental health when he learned from a certain Mrs. Chichester that the encounter he had had with evil was known among Swedenborgians as "vastation" (Edel 1953, p. 32). And, Hufford (1982, p. 161) reports, one surgeon unnerved by an Old Hag experience was literally

"We need to admit that sane, intelligent people may sincerely perceive, or come to believe, that they have been attacked or abducted by paranormal agents."

reduced to tears when he found it described in psychological literature as "idiopathic SP." Strieber may, then, have fallen into the abductees' camp exactly for the reasons he describes: to find convenient cultural language for a psychological event that otherwise would have to be labeled "fraud" or "madness." If Strieber sincerely believes that he is not consciously fabricating his experience, and if he is not mentally ill, then the hard-line rationalist position, as stated by Taves, gives him no alternative but to proceed on the assumption that the aliens are real. We actually leave him no other psychologically sound option.

The pity is, though, that concepts like "vastation" or "Old Hag" derive from cultural systems with complex psychological checks and balances. To accept the Newfoundland conception of Old Hag, for instance, one must also accept the reality of witchcraft. But the tradition also comes prepared with countercharms—sleeping with a sharp knife, for instance—known to be effective against repeat attacks (Hufford 1982, pp. 3-4; Hyatt 1965, pp. 270, 273). Such a practice, like any fetish, would materially reduce the anxieties of the victim (though perhaps not those of his bedmate). The concept "alien abduction," by contrast, leaves the victim unprotected against future visits, which no open knives, strings of garlic, burglar alarms, or concentrated skeptical thought patterns can repel. So accepting the concept may immediately reduce anxieties, but at the cost of inviting recurrent attacks.

The progress of Strieber's "visitations" after his conversion shows him gaining some degree of psychological control over his visitors—making the visionary face move as he pleases or, in the last scene, actually inviting them to return so that he can show his lack of fear. But it is unclear whether his missionary role will communicate the same control to other troubled souls who may have experienced—or who may find relief in "remembering"—similar events. If the Triad Group that Strieber has formed to collect and analyze abduction accounts actually turns over to qualified professionals a corpus of similar experiences, some good may come from Strieber's missionary work. Competent psychologists may be able to examine the phenomenology of the events described and determine more exactly what mechanisms lie behind them. This in turn may suggest more specific and appropriate psychological treatment for the victims. Time will tell.

In the meantime, the rationalist community needs to be cautious not to commit itself too quickly to a presumption of fraud. Even Baker, as sympathetic as he is to abductees, still suggests that books based on their accounts should be labeled "science fiction," a move that has the effect of calling their stories conscious fictions. Perhaps rationalists (and bookstores) ought to abandon the simple dualism of classifying narratives into "fiction" and "non-

fiction" and follow folklorists in their more complex scheme: "tale" (conscious fantasy), "history" (unquestionable fact), and—in the middle—"legend" (alleged but disputable fact). The need of Strieber and other abductees to hedge their accounts with proofs of their veracity is itself proof of the debatable status of their narratives, just as oral accounts of ghosts, manlike apes, and other anomalous phenomena are spiked with details, corroborations, and even disclaimers, to the point of losing the forward motion of the story (Bennett 1988).

Sargant (1961, p. 233) notes that a sense of humor is one of the surest blocks to conversion, and mirth is doubtless our first line of defense against works like *Communion* that convey a patently missionary message. But humor, like an oversharpened razor carelessly used, may turn on its user. We need to admit that sane, intelligent people may sincerely perceive, or come to believe, that they have been attacked or abducted by paranormal agents. In the case of persons who (like Strieber and, before him, the Hills) seem to be objectively disturbed by memories of abduction, the proper response is not amusement but concern—not over the risk of UFO invaders, but over the treatment of such victims.

We should insist that they receive appropriate professional evaluation and treatment. Otherwise such victims will continue, as we all must, to adjust to life at a high level of uncertainty. At present this means they will seek out those who will listen to their experiences without assuming they are either lying or mentally ill. Unfortunately this leads them to the UFOlogists, whose sympathy inevitably must be less for the suffering individuals than for the value their testimony may have for supporting the extraterrestrial hypothesis.

Whether this price is a fair one for maintaining our own fiction that "intelligent" people do not experience apparently paranormal events, I leave the skeptical community to decide.

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Alien-Abduction Claims And Standards of Inquiry

The following discussion of recent alien-abduction claims and the use of appropriate standards of investigation and scientific reasoning in examining such stories is excerpted from an edited transcript of "Extension 720," a radio talk-show program on WGN-Radio in Chicago. The host of the show is Milton Rosenberg, professor of psychology and chairman of the graduate program in social psychology at the University of Chicago. His guests were Charles L. Gruder, professor and chairman of the Department of Psychology at the University of Illinois at Chicago; Budd Hopkins, author of Intruders, *a book based on Hopkins's interviews with alleged "abductees"; and (by telephone) Martin Orne, professor of psychiatry and psychology at the University of Pennsylvania.*

Milton Rosenberg: Larry, if you were a consultant for Random House and they called and said, "Professor Gruder, we have a manuscript we want you to read. We want to get your evaluation as a social psychologist interested in the dynamics of human interaction as that might affect research findings. Give us a critical reading of Mr. Hopkins's book before we decide whether or not to publish it." What would you have told them after completing the reading?

Charles (Larry) Gruder: I would want to keep it at arm's length probably. It's not the kind of thing that scientists turn to easily. It poses very difficult questions, and it's easy to dismiss them. One of the points in the book that I take issue with is whether skeptics are really *believers*—believers that this can't possibly happen. I don't doubt that all of us try to keep it at a distance, but I think true skeptics—and I would count myself in their number—would look for answers using what we know are the best, soundest scientific tools. I would have many problems with your [Hopkins's] methodology, your way of gathering data, and your way of interpreting data. You touch on many important factors in doing this kind of research: the nature of observation, the nature of measurement, the reliability of the measures. You're obviously sensitive to the issue of biasing the people you're interviewing. Yet I saw many places in the book where I would have problems accepting the data.

Rosenberg: List those problems. Let's put them on the table. You're a gentleman and you've approached this in a very gentle way; but to come directly to the case, what do you see to be the major methodological problems and interpretative flaws?

Gruder: One of the issues is quite important in science, and that's repeat-

ability or reliability. You [Hopkins] say that one of the factors in these cases that convinces you is that similar experiences keep coming up. For example, people describe the craft—the UFO—in the same way; they tend to describe the aliens in the same way. Well, being a behavioral scientist and an empiricist, I decided that I was going to collect some data myself. So I asked a number of students to draw a UFO and an alien. I didn't tell them why I wanted them to. They didn't know I would be here talking with you or that I was reading *Intruders*. I looked at their drawings, and it was surprising that many were quite similar to the drawings in the book. How can this be?

"The layperson believes that hypnosis is a very powerful, somewhat mystical technique for getting at the truth. Unfortunately it is not."
—Charles L. Gruder

Budd Hopkins: I don't think that's surprising at all.

Gruder: Well, it isn't surprising, because how do people know what a UFO should look like? They read the same stories, the same magazines, see the same science-fiction movies. You mentioned a particular shape of the head, or the fact that the mouth was a line. I found that most of these drawings were of humanoids. Of the 23, 18 were humanlike. Of these, one-third had big heads, one-third had a line for a mouth. I figured out that most people who are not artists don't know how to draw a mouth so they draw a line. There were no drawings that looked exactly like the pictures in the book, but there were many similarities. It was the same with the UFOs.

Hopkins: I should mention, of course, that Allen Hynek had many drawings that he gave to Steven Spielberg for use when he made *Close Encounters of the Third Kind*—which was of course one of the biggest box office successes of all time. There was a serious attempt to follow the data that Allen Hynek and other people had gathered. So I think you can say that Steven Spielberg popularized the essential physical type that the UFO reports had engendered before that time.

Rosenberg: Let me raise a very basic question. It touches on methodology and on the substantive aspects of this study as well. There are subjects who are somewhat disturbed but don't quite know what happened until you submit them to hypnotic induction and hypnotic regression. Then they produce versions of this by now rather standard tale of somebody being picked up, taken onto a spaceship, and given a medical examination. Now we have the extra finding from Budd Hopkins's investigations that the purpose of the medical examination is to perform artificial insemination that will blend the two species, the earthbound and the visiting species. Now Larry, is there a parsimonious way of interpreting the fact that so many people under hypnotic regression come up with the same memories—with essentially the same story?

Gruder: There certainly is a more parsimonious explanation. Budd does

use hypnotic regression as a technique and thereby elicits memories. One of the effects of stressing the hypnotic recovery of these memories is that it lends credibility. The lay person believes that hypnosis is a very powerful, somewhat mystical technique for getting at the truth. Unfortunately, it is not. The evidence is absolutely clear that hypnosis does not refresh memory. We know this not so much because of investigations into UFOs and aliens but because of extensive use of hypnosis over the past 20 or 25 years in the legal system in investigations of crimes and also in the courtroom. I know you have cited the AMA report. The AMA report makes it clear that there is no evidence that in fact hypnosis can effectively refresh memory. What hypnosis appears to do is to increase the number of recollections people report; and, as you correctly say, these include both accurate and inaccurate recollections. Another interesting feature of hypnosis in refreshing memory is that subjects are less able to distinguish the accurate from the inaccurate reports than if they were not hypnotized.

Rosenberg: If you have inaccurate memories recalled only under hypnosis, what would be the source of their content?

Gruder: One of the things they think happens under hypnosis when you're trying to refresh memory is what they call "confabulation," or pseudomemories. The subject transforms prior beliefs into thoughts or fantasies that they come to accept as memories. . . .

Hopkins: I also have a quote from the American Medical Association report: "In the case of fugues, in which an individual forgets his identity, hypnosis can be an effective clinical procedure to help the person recover his identity. When used in this manner, hypnosis may serve to reinstate the individual's former recollections." And of course we have something quite analogous to this in these UFO cases.

Furthermore, in 14 of the cases I worked with, the recollections were very complete through the whole UFO experience, without hypnosis having been employed. Hypnosis is not in any sense essential to these although it seems to be essential in a large number of them. So we have a case where what's recalled under hypnosis and what's recalled normally are very similar. But even more important than that, I think we're sort of picking up the dog by the wrong end. The thing is that we talk about whether or not hypnotic recollection is accurate. I don't think hypnotic recollection is very different from normal, nonhypnotic recollection, which is not necessarily valid either. I don't see that we should necessarily take in a court of law someone's eyewitness report of something that occurred very quickly, [for example under] gunfire at a bank as somebody runs out; we know that under those conditions a person can misinterpret a lot of things. I think that we have problems of just normal observation, normal recollection, in any kind of case worth investigating at all. The situation of hypnosis, I think, simply adds more of those recollections, which can be just as bad or just as good.

Rosenberg: I want to put a proposition to the two of you. It's terribly simple. With such memories—whether you recover them by hypnosis or by direct, fully conscious interchange between the person who claims to have

had the experience and the person who is interviewing him or her—what you're probably dealing with is a pervasive modern myth that has been much propagandized, circulated, and diffused through the telling and the retelling and the re-retelling of the story. The more it's told, the more all kinds of people on the border are prone to pick up the myth and share it with others.

"What you're probably dealing with here is a pervasive modern myth, propagandized, circulated, and diffused through its telling and retelling."
—Milton Rosenberg

I don't mean on the border of nuttiness. I mean on the border of confusion about their own lives, their own past, and maybe with some present emotional crisis or merely some unbearable loneliness. In that state, they could be lying. More typically they are probably attempting to grope their way out of their own confused identity toward some order and meaning by having this "recall," which grows upon itself and becomes a spun fantasy. But the fact that the stories are similar from one to another across maybe a set of hundreds of cases would suggest that they are all drawing upon past versions of the story they have encountered. That some investigators take it seriously and find confirmation suggests to me that some of these investigators—and Budd, I say this with all due regard to your utter sincerity—don't fully honor, perhaps because they haven't been fully trained in them, the hard canons of empirical science.

I suggest then that abduction and extraterrestrial impregnation comprise a modern myth. Indeed, it is a bit of urban folklore, to use the term that has been employed for certain kinds of stories that circulate as having happened to somebody who is the best friend of my cousin's wife's aunt. My view then is that the easiest explanation of all of this, of your research and lots of other research of the same sort, is that the subjects are credulous and susceptible and have picked up a modern myth; and for one or another reason they find it valuable to themselves, or tension-reducing for themselves, to give you back that myth as if it really happened to them. Often, of course, they have convinced themselves in and through the telling.

Hopkins: Well, we'll leave aside a lot of problems with your theory, such as the physical evidence, the fact this might happen to four, five, or six people at once, simultaneously, with the same descriptions, and so forth. But this is the basic problem. I think it's a wonderful theory you've brought up. It's been looked into before. People ask, "Exactly what is this modern myth, how does it get to us, how does it turn up in science fiction?" I go into this at some length in the book, that there are two essential modern myths of extraterrestrial contact. One is the space-brother myth and the other is the paranoid myth of destruction from outer space. These are extremely common, and they have been the basis of most of our films. *Close Encounters* was of

course an example of the space-brothers myth. Finally they land, and it's all quite wonderful.

What we're getting at here is something totally, absolutely neutral. One of the psychologists who has done interviews with people whom I've worked with—quite a few of them—said to me, "Why would anyone fantasize a thing like this?" It doesn't give you the satisfaction of a paranoid image where you struggle against overwhelming odds and evils that are following you. On the other hand, it doesn't give you the satisfaction of having been chosen for some wonderful quasi-religious role in the world. In fact, you have been turned into a kind of neutered, powerless figure with no autonomy whatever.

Rosenberg: Maybe it gives representation to your deep feeling that you are a powerless figure who is abused in the world.

Hopkins: Now that is very interesting, because this is exactly why we need a lot of psychological help in investigating these cases. One can test exactly the statement you made by doing psychological therapy, psychoanalysis, whatever. One of the projects I would like to see—and I would fund this myself if my book makes any money—would be to take a few of our abductees whose accuracy I have enormous faith in—I don't like to believe in their accuracy, but I'm forced to—and submit them to psychotherapy with someone who came from any point of view whatsoever psychologically, [including] the position you just stated, and see after a period of perhaps two or three years of very thoroughgoing psychoanalysis and psychological testing whether the theory you stated has any basis in reality.

Rosenberg: But the immediate issue before us is to formulate a parsimonious hypothesis—one that meets the requirements of Occam's Razor, the general rule in science that one should explain things as simply as possible, making as few assumptions as possible. I think I have offered a parsimonious explanation that cannot be rejected by the available evidence. What do you think, Larry?

Gruder: I think that that's one. As I said earlier, I am a skeptic in the sense that I'm not willing to accept any hypothesis, regardless of how plausible or reasonable or implausible or unreasonable it is, until I see some convincing evidence. Convincing evidence is evidence that meets the scientific standards that are generally accepted. I don't think the evidence that you [Hopkins] provide in your book meets that, and so I can't accept it. But it doesn't mean that I couldn't if I had the right evidence.

Rosenberg: What would the right evidence be?

Gruder: The research would have to be designed to eliminate some of the problems we talked about earlier, possibilities of biasing. You [Hopkins] have interviewed most of these people. Many have read about what you've done, which is how they get to you, and they may already be influenced toward your view. One of the features of hypnosis is that people are more suggestible. You told us earlier that you recognize this and tried to avoid the problems. But even the most well-intentioned person, even the most well-intentioned scientist, knows you can't avoid producing this kind of bias in an interpersonal exchange.

Rosenberg: That is to say you lead and cue them not because you intend to deceive but because your own desire to have your own hypothesis confirmed affects the way you deal with them.

". . . The individual whose story is a response to the demands of the hypnotic situation truly believes that what he tells you must be true, though he has not known it before."—Martin Orne

Gruder: There are other parsimonious explanations, and this is part of one: namely, that you have attracted and have focused on people who tend to confirm your hypothesis. In fact, you say that after you had appeared on a television show, or a radio show, you got hundreds and hundreds of calls, and many letters in response to the book.

Hopkins: Hundreds of letters.

Gruder: The point is that you focused only on certain ones, those you said you had judged to be more plausible. Well, immediately you're selecting out, and that was my point with my little experiment. There were lots of descriptions and lots of drawings of different types of UFOs and different types of aliens, but some were what you were looking for, and I could have picked ones that meant something else.

Hopkins: Well, I wouldn't ever worry about that, since the film *Close Encounters* based itself on the case material and was one of the biggest box-office hits of all time. Now here's the point: If your theory is right, this is a social phenomenon and there is some kind of collective myth. We can study the science fiction, the popular imagery that we've been shown; and I described it, I think accurately, as falling into those two groups. As far as I know, there has only been one film ever made that really dealt with, let's say, the scenario that appears in my book.

Rosenberg: The immediate issue before us is: Are these veridical accounts? From the stories that have been elicited from these various respondents—by hypnosis or by other modes of inquiry—can we conclude that alien invaders have been landing, snatching up people, and submitting them to medical examination, and furthermore that these medical procedures involve a forced intermingling of the two gene pools?

Hopkins: All I can say is I don't try to prove anything in this book. I don't think I can prove anything to anybody. That is not my goal. I'm doing exactly at this very moment what I wanted to do. I'm bringing this to the attention of scientists. I can blow it all away by saying: "It's just unbelievable. I just can't believe it. Who can believe it?" That isn't the point. I would like from both of you a set of proposals about how to go about investigating a particular, specific case.

Rosenberg: We might put the question not only to Larry Gruder but also to another guest via telephone. This guest is probably the most eminent

student of hypnosis in the country, Dr. Martin Orne, who holds both an M.D. and a Ph.D., and is professor of psychiatry and psychology at the University of Pennsylvania. The AMA panel on hypnosis and its use in the courts, which Larry Gruder referred to earlier, was chaired, in fact, by Martin Orne.

Martin, I'm very glad you could join us. The basic question I would raise is: What about the use of hypnosis and other modes of inquiry with people who give reports of having been abducted and medically examined on landed extraterrestrial vehicles?

Martin Orne: To get all of that in perspective, we could go back to when Freud used hypnosis with hysterics at the turn of the century. When he hypnotized them and asked them to remember the time they first had the symptom, they would remember things with intense effect and they would relive typically something that seemed to be a seduction by an adult male, usually their fathers. And Freud actually developed his theory of hysteria based upon these observations. It appeared that not only did people seemingly remember all kinds of things that you couldn't know if you weren't there—a facial expression, a torn tapestry, a picture that's crooked, all kinds of things like that—they also, when they woke up afterward, felt a lot better. They lost the symptom. It's for that reason that Freud argued that this really was a reliving of a past event. He put forth this view at the time and it has stayed with us to the present day. Actually, he himself realized within a couple of years that these weren't actual memories, that they were mixtures of memories, fears, fantasies, hopes—all kinds of things mixed up.

Rosenberg: Now show me exactly how you go from that to the question of the hypnotic recall of people who claim they've been abducted onto UFOs.

Orne: Well, you know we can't really look at the accuracy of the subjects' descriptions of the UFOs and their occupants because these beings aren't nice enough to come on television. So we don't see them. But you can ask, "What about the accuracy of memories that you recall, going back to when you were six and before that? How accurate is your memory when you relive it in age regression?"

I did the first study of this type back in 1951. For the first time, we actually got the drawings somebody did when he was six years old, which he hadn't seen since then. His father had saved everything the little boy did as he grew up. He had some drawings in the attic that his son had done at age six, of a house, a teepee, a man, a number of things. So we age-regressed the individual. He hadn't seen those drawings and to that day he hadn't drawn the same things. We asked him to draw a house, a tree, a man, and so forth. His drawings looked great. It seemed as if he actually relived it. Two weeks later we repeated it. He gave us a somewhat different drawing, but again it looked really like a child's work. And then when we compared it to the real thing, it became clear that it was totally different. If you didn't have the real thing, it would have looked as if it were an actual recollection and reliving.

Now we have a good deal of data along this line that shows that what people remember is not an accurate recall. It is something that is emotionally

accurate. That's why it is very useful in psychotherapy, but it isn't what really happened.

Rosenberg: Now what kind of emotional utility might one get through adopting the "abduction onto a UFO" myth? For those who recover that memory through hypnosis or through other inquiry, what sort of resolution of what kind of deeper conflict just might be involved? It's a matter of speculation, of course, but what are your speculations?

"I don't try to prove anything in this book. . . . I'm bringing this to the attention of scientists."
—Budd Hopkins

Orne: There are a lot of secondary gains. For one thing, you've become the object of interest of a significant person, a psychiatrist who has some high status, and he will spend hours and hours with you working out what those little green men did to you. He is fascinated by it. We all love an audience, and we get a fascinated audience and become the center of attention. Many of these people don't have much to attract people interpersonally, and now they suddenly become celebrities.

Gruder: Hypnosis has been used to emphasize that everything we experience is recorded in memory, as though it were on a videotape, and that all we need to get it out is hypnosis itself. Thus there is a tremendous demand on these people to produce something, which is one reason perhaps that we find with hypnosis that you generate more recollection. But it is a false model of memory as well as a false model of hypnosis. The system is just too fallible to rely on for the kind of evidence we need to convince us of a particular explanation of the phenomenon.

Orne: Precisely. But I'd like to go just a step further. Not only does hypnosis cause you to do that, but it also causes you to become more convinced about what is talked about. That's the most interesting thing. You see, hypnosis causes less accurate memories, but the individual believes that they're more accurate than their waking recollections. That's a really fascinating thing. . . . The individual whose story is a response to the demands of the hypnotic situation truly believes that what he tells you must be true even though he may not have known it before.

Hopkins: We have two basic options here; they're very simple. We can make this go away by saying I can amass a sufficient amount of theory around it to blanket it completely and smother it. And the other is simply to say I find it intriguing enough that I would like to actually work with these people and investigate their situations, their cases, with every kind of psychological and physiological tool that we can use.

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Rosenberg: As we end our discussion, Larry, do you feel any temptation toward a hemidemisemiquaver of persuasion in the direction of Budd Hopkins's argument?

Gruder: I don't feel that there's any evidence that supports his explanation of the experiences these people had. I don't doubt that these people had experiences and that they are fascinating from the point of view of a lay person or a psychologist. They're certainly worthy of explanation.

Rosenberg: What can we learn from this book? If you were to use it in a classroom at the University of Illinois, you'd use it for what purpose, to make what point?

Gruder: If I were to use it, I would use it as a tool to teach scientific methodology, because it demonstrates all of the problems involved in doing science, as a social scientist and as a psychologist: observation, measurement, reliability, validity, the problems in conducting experiments and of gathering data—demand characteristics, experimenter bias, evaluation apprehension, controls. All of these issues are present in the book and would provide probably a very compelling example for students. It would keep them involved.

Rosenberg: What you apparently mean, but haven't directly said, is that this book is a perfect example of errors in all of those areas.

Gruder: Certainly, but Budd recognizes and has admitted that he is not a scientist. He doesn't claim to be. What disturbs me about it, if anything disturbs me, is just that the presentation is as though the book were scientific, and in fact it's not. •

For further discussion of these claims and the issues surrounding them, see the reviews of Budd Hopkins's Intruders *and of Whitley Strieber's* Communion *in our Fall 1987 issue; psychologist Robert A. Baker's article "The Aliens Among Us," in our Winter 1987-88 issue; articles on misperceptions about hypnosis, by Nicholas Spanos and Peter Reveen, also in our Winter issue; and of course the article in this issue by folklorist Bill Ellis, "The Varieties of Alien Experience."*—THE EDITOR

This is the second of two articles.

The MJ-12 Papers: Part 2

Further evidence that these documents are counterfeit

Philip J. Klass

NUMEROUS FLAWS and inconsistencies in the "Top Secret/Eyes Only" MJ-12 document, allegedly written by Rear Admiral R. H. Hillenkoetter on November 18, 1952, to brief President-elect Dwight D. Eisenhower about crashed flying saucers, provide further evidence, beyond that discussed in Part 1 of this report (*SI,* Winter 1987-88), that the document is a counterfeit.

The document, made public in late May 1987 by UFOlogist William L. Moore, supports his earlier claims of a 1947 crashed saucer made in the book *The Roswell Incident,* which he coauthored with Charles Berlitz in 1980, based on research conducted by Moore and UFOlogist Stanton T. Friedman.

One obvious anomaly is that the introductory portion of the Hillenkoetter/Eisenhower briefing document is written as if Eisenhower had never been informed that a crashed saucer (allegedly) had been recovered in New Mexico on July 7, 1947, by Army officers while Eisenhower was Army chief of staff. Moore made a similar claim in his book.

Yet historical records turned up by Moore himself show that only two days after the alleged crashed-saucer recovery Eisenhower spent more than two hours with Lt. Gen. Lauris Norstad, a top Army Air Force (AAF) official. Surely General Norstad would not withhold word of so momentous an event from his commanding officer, who would be responsible for defending the nation if the crashed saucer was the precursor of an extraterrestrial attack.

Later that same day, July 9, Lt. Gen. Hoyt Vandenberg, AAF vice chief of staff, who Moore claims knew of the crashed saucer, attended a two-hour meeting of the Joint Chiefs of Staff in which Eisenhower participated. Yet the contents of the Hillenkoetter document imply that General Vandenberg also

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withheld news of recovery of a crashed saucer from the nation's top military officials.

Stanton Friedman has attempted to explain this anomaly by pointing out that a month before the (alleged) recovery of the crashed saucer Eisenhower had announced that he would retire later that year to become president of

William L. Moore (*left*), who made public the MJ-12 documents, which seemingly confirmed the 1947 crashed-saucer recovery featured in a book he coauthored in 1980, and Stanton T. Friedman, his principal collaborator, endorsed authenticity of MJ-12 documents at 1987 MUFON Conference in Washington.

Columbia University. Although Eisenhower remained on duty as one of the nation's top military officers for another six months, Friedman claims that information on the crashed saucer was withheld from him because of his pending retirement.

According to the Hillenkoetter briefing document, "Numerous examples of what appear to be a form of writing were found in the wreckage. Efforts to decipher these have remained *largely* unsuccessful. Equally unsuccessful have been efforts to determine the method of propulsion or the nature or method of transmission of the power source involved. Research along these lines has been complicated by the *complete absence* of identifiable wings, propellers, jets, or other conventional methods of propulsion and guidance, as well as a *total lack* of metallic wiring, vacuum tubes, or similar recognizable electronic components." (Emphasis added.)

As a result, the document reports, "it is virtually certain that these craft do not originate in any country on earth. . . ." (Based on the described characteristics, it should have been *absolutely* obvious and certain that the craft could not have been built on Earth.)

The briefing document notes that the "implications for the National Security are of continuing importance in that the motives and ultimate intentions of these visitors remain completely unknown. In addition, a significant upsurge in the surveillance activity of these craft beginning in May [1952] and continuing through the autumn of this year has caused considerable

concern that new developments may be imminent."

The document completely fails to mention that UFOs seemingly had been spotted near the nation's capital quite recently—July 19-20 and again on July 26-27—on radar scopes at Washington's National Airport, only a few miles from the White House and the Pentagon. One should expect that Hillenkoetter would have begun his briefing by citing these specific and potentially alarming incidents that could indicate possible hostile intent.

Instead, Hillenkoetter began his briefing by discussing historical trivia, such as the first UFO sighting report by pilot Kenneth Arnold. Another example: the document describes the (alleged) history of Majestic-12:

> OPERATION MAJESTIC-12 is a TOP SECRET Research and Development/ Intelligence operation responsible directly and only to the President of the United States. Operations of the project are carried out under control of the Majestic-12 (Majic-12) Group which was established by special classified executive order of President Truman on 24 September, 1947, upon recommendation by Dr. Vannevar Bush and Secretary [of Defense] James Forrestal. (See Attachment "A.") Members of the Majestic-12 Group were designated as follows:
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> | | |
> |---|---|
> | Adm. Roscoe H. Hillenkoetter | Dr. Jerome Hunsaker |
> | Dr. Vannevar Bush | Mr. Sidney W. Souers |
> | Secy. James V. Forrestal | Mr. Gordon Gray |
> | Gen. Nathan F. Twining | Dr. Donald Menzel |
> | Gen. Hoyt S. Vandenberg | Gen. Robert M. Montague |
> | Dr. Detlev Bronk | Dr. Lloyd V. Berkner |

A footnote states: "The death of Secretary Forrestal on 22 May, 1949, created a vacancy which remained unfilled until 01 August, 1950, upon which date Gen. Walter B. Smith was designated as permanent replacement."

The Hillenkoetter document never identifies who was chairman of MJ-12, although his being selected to give the briefing and a designation "MJ-1" after his name (where he is listed as the briefer) implies he was its chairman. (No such designation is shown for others.) Yet, if Dr. Bush played a key role in organizing such a group, logically he would have been named chairman.

The names are not listed in alphabetical or any other logical sequence. Hillenkoetter seemingly lists himself as "Adm. *Roscoe* H. Hillenkoetter," even though examination of authentic letters that he wrote while director of the CIA, obtained from the Truman Library, show that he used his initials "R. H." and not "Roscoe." Further, in these authentic letters he correctly showed his rank as "Rear Admiral," not "Admiral," whereas the briefing document implies he was a "full admiral" with four-star rank.

Five of those listed as original members of the alleged MJ-12 were highly respected scientists—Bush, Bronk, Hunsaker, Menzel, and Berkner, presumably selected because of their technical expertise. Thus, if MJ-12 existed, they would be likely to remain on the committee (except possibly for Bush, for reasons to be discussed shortly).

General Vandenberg, as vice chief of staff in 1947 of the newly created

U.S. Air Force, who would soon become chief of staff and hold that position until he retired in mid-1953, would also be a logical original member who would likely remain on MJ-12 because of the USAF's vital role in protecting the nation's air space and operating its network of early-warning radars.

But others listed as original members of MJ-12 would have been named to the group because of the positions they held as of September 1947, when MJ-12 was created. When they left these posts for other assignments or retired from government, their successors in those posts would logically have replaced them on MJ-12. Yet that did not occur, according to the briefing document.

For example, James Forrestal as secretary of defense would logically be named to MJ-12 in 1947. But when Forrestal resigned in the spring of 1949 (shortly before committing suicide on May 22) the new defense secretary, Louis A. Johnson, would have been his logical replacement on MJ-12.

Instead, the Hillenkoetter document claims that Forrestal's vacancy was not filled for more than a year and that his replacement was Gen. Walter B. Smith. But at that time General Smith was replacing Hillenkoetter as director of the CIA, and thus logically should have taken Hillenkoetter's place on MJ-12, not Forrestal's.

When Hillenkoetter left the CIA in the fall of 1950, he returned to active duty in the Pacific as commander of the Seventh Fleet in Formosan Waters, a post he held for more than a year. Thus he would be far removed from Washington and could not readily direct the important work of an MJ-12 committee—if he originally had been its chairman. If he was not its chairman, why would Hillenkoetter be selected in late 1952 to brief Eisenhower? In the intervening year since he returned to the United States in the fall of 1951, he had served as commander of the Brooklyn Navy Yard and later of the Third Naval District, in New York. (The reason for Hillenkoetter's being chosen by the document's counterfeiter will be disclosed shortly.)

In July 1947, when the alleged crashed saucer was sent for analysis to the AAF's large technical center at Wright Field (now Wright-Patterson AFB, Ohio), its commander was Lt. Gen. Nathan Twining, who is shown as an original member of MJ-12. But within several weeks after MJ-12 (allegedly) was created, Twining was transferred to Alaska to head the Alaskan Command, and he remained there for more than two years before being transferred back to Washington. Surely if Twining was selected for MJ-12 because of his technical expertise, he would have stayed on at Wright-Patterson AFB to monitor analysis of the crashed saucer. Or his successor there should logically have taken his place on MJ-12.

Gordon Gray, who had become *assistant* secretary of the army about the time that MJ-12 allegedly was created, would have been a most unlikely member based on background and position. Gray was trained as a lawyer and had spent the previous ten years as publisher of two newspapers, and he did not hold a top-ranking Pentagon position. In mid-1949, Gray was named secretary of the Army, but he resigned April 12, 1950, to return to civilian life and was succeeded in that post by Frank Pace, Jr. Yet more than two

years later, when the briefing document allegedly was written, Gray was still listed as an MJ-12 member.

Sidney W. Souers might have been a logical choice as an original member of MJ-12 because on September 26, 1947, he was named executive secretary of the president's newly created National Security Council. Souers, a naval reservist, had risen to the rank of rear admiral during World War II to become deputy chief of Naval Intelligence and played a role in organizing the then-new CIA. Souers retired from his NSC position in early 1950 to return to civilian life, but he, rather than his successor at NSC, is listed in late 1952 as an MJ-12 member.

Thus, according to the briefing document, as of late 1952, MJ-12's membership included two civilians who were not scientists and had since retired to civilian life. But MJ-12 failed to include the current secretary of defense, Robert A. Lovett, who should certainly have been a member because of "implications for the National Security. . . ."

At roughly the same time as the briefing document allegedly was written, the CIA was preparing to secretly convene a panel of five top scientists, headed by Dr. H. P. Robertson, of the California Institute of Technology, for a four-day study of the USAF's best UFO cases. The CIA sought this assessment because it was then considering launching its own UFO investigation. (How strange that CIA director Gen. Walter B. Smith, who would have known of the crashed saucer through his membership in MJ-12, would allow the CIA's top scientific officials to waste their time, and his own time in briefings, when he already knew the "truth" about UFOs.)

By a curious coincidence, one of the five scientists selected for the CIA's UFO assessment was Lloyd V. Berkner—allegedly also a member of the MJ-12 group. If MJ-12 existed and Berkner was a member, it was a waste of his valuable time to participate in a "make-believe" exercise for which he already knew the answer. The final report of the "Robertson Panel," which was classified "Secret" and signed by Berkner, concluded that there was no evidence that any UFOs were extraterrestrial craft or posed any potential threat to national security.

Although two of the five members of the Robertson Panel convened in early 1953 are still alive—Dr. Luis Alvarez and Dr. Thorton Page—every person listed as being a member of MJ-12 in late 1952 was deceased when Moore, Friedman, and Shandera released their documents. Hillenkoetter died in 1982, two years before Moore says he received the MJ-12 papers.

The briefing document, allegedly found on a roll of 35 mm film received in the mail by Moore's friend Jamie Shandera on December 11, 1984, also contains what purports to be a "Top Secret/Eyes Only" memorandum from President Truman to Defense Secretary Forrestal, dated September 24, 1947, asking that Forrestal and Dr. Vannevar Bush create the MJ-12 group.

Although the White House letterhead and the Truman signature appear authentic, the memorandum's format and typewriter typeface differ significantly from that of copies I received from the Truman Library of other Truman memoranda written to Forrestal and other cabinet members during

that same time period. The library has no record of the alleged September 24, 1947, memorandum. (A counterfeit can easily be made by obtaining a photocopy of an authentic Truman memo from the Truman Library, superimposing a spurious message, making a photocopy, touching it up with white typewriter correction fluid, and making another copy.)

Moore, Friedman, and Shandera stress that Forrestal and Bush met with the president on the date of the purported Truman memorandum calling for the creation of MJ-12, which is true. But in reality the meeting was held to prevail upon Bush to serve as chairman of the new Defense Research and Development Board, authorized under the then-recent National Security Act of 1947. The next day, September 25, Truman announced that Bush had accepted the appointment, and Bush replied in a letter dated September 26 acknowledging his acceptance.

In his letter, Bush emphasized "my wish ultimately to be free of governmental duties in order to return more completely to scientific matters, and I am happy to have your assurance that you will look to the Secretary and me for a suggestion of a successor to take over my responsibilities after the new organization is well launched."

Roughly a year later, on October 1, 1948, Bush wrote to the president to submit his resignation so he could "give more complete attention to the affairs of Carnegie Institution of Washington." Yet the MJ-12 briefing document indicates that as of four years later Bush still was an active member.

If President Truman knew that a crashed saucer had been recovered in July 1947, and the remains of another in late 1950, as claimed in the briefing document, certainly he would have been gravely concerned when he read the headlines in Washington newspapers on July 20, 1952, reporting that mysterious blips had been spotted the previous night near Washington, D.C., on the scopes of an old military radar recently installed at National Airport.

Although later government investigation would show the blips were the result of anomalous radar propagation conditions, surely Truman would immediately have called for a White House briefing by General Vandenberg, USAF chief of staff and member of the alleged MJ-12 group, to determine what was being done to protect the nation's capital against possible UFO attack. And certainly General Vandenberg would promptly have beefed up Washington's air defenses by rapidly shifting large numbers of interceptors to nearby military airfields.

Yet one week later, when mysterious blips again appeared on the radar displays at Washington's National Airport shortly after 9:00 P.M., it was not until two hours later that the USAF's New Castle County air base in Delaware was alerted and dispatched a mere two interceptor aircraft. Two hours later, another pair of interceptors took off to replace the first two, which were running low on fuel. Thus a total of only four interceptors were launched that night to defend the nation's capital!

If the president knew of crashed saucers, surely the two incidents would prompt him to quickly seek a briefing on July 27 by his MJ-12 group, and an explanation from General Vandenberg of why he had failed to promptly

provide much more air cover for the nation's capital in view of the similar incident the previous week. Yet instead, President Truman simply asked his Air Force aide, General Landry, to make a telephone inquiry to USAF intelligence at the Pentagon.

If General Vandenberg had been so grossly derelict in his duty to try to defend the nation's capital, surely he would have been promptly replaced both as USAF chief of staff and as a member of MJ-12. Yet the briefing document indicates that General Vandenberg remained on MJ-12, and he held his top USAF post until normal retirement in mid-1953.

The briefing document claims that MJ-12, with President Truman's concurrence, opted to keep the crashed saucer secret "to avoid public panic at all costs." It is interesting to check this claim against Truman's reaction when he learned on September 19, 1949, that the USSR had exploded its first nuclear weapon several weeks earlier. The potential implications for the U.S. public were far more terrifying. Only four days later, on September 23, after allowing time to brief the Joint Chiefs of Staff and congressional leaders, President Truman publicly announced the first Soviet nuclear test. He quite correctly sized up public reaction and there was no panic.

The launch of the first small Soviet Sputnik in October 1957, and the launch of a much larger satellite a few weeks later, prompted U.S. concern that the Soviets might someday be able to use satellites to deliver nuclear weapons from space. To enable the United States to continuously monitor all objects in space, Navy scientists developed and deployed an "electronic fence" —stretching across the southern portion of the United States from the Atlantic to the Pacific. This Navy Space Surveillance System was so sensitive it could detect a six-inch-long metal strap released from one of our satellites.

To speed deployment, the system was built using commercially available television-station transmitters and large numbers of slightly modified television-set antennas. Such a system could have been deployed in the late 1940s or early 1950s, if the United States had captured one or more crashed extraterrestrial craft and wanted to be able to detect and monitor any future intrusions. Yet such a space surveillance fence was not built until the late 1950s, following the launch of Sputnik.

Hard evidence that the MJ-12 papers are a fraud can be found in a once "Top Secret" document that was declassified in 1985 at the National Archives and featured in the July 1985 issue of the *MUFON UFO Journal.* The document, dated 10 December 1948, was prepared by the USAF's Directorate of Intelligence and the Office of Naval Intelligence and is titled: "Analysis of Flying Object Incidents in the U.S."

The opening page of the top-secret report begins: "PROBLEM: TO EXAMINE pattern of tactics of 'Flying Saucers' (hereinafter referred to as flying objects) and to develop conclusions as to *the possibility of existence.*" (Emphasis added.) In other words, more than one year after the U.S. government allegedly captured a crashed saucer in New Mexico, top USAF and Navy intelligence officers were uncertain whether there really were extraordinary craft in our skies.

The report states, "THE ORIGIN of the devices is not ascertainable," and considers two possible explanations. One is that "the objects are domestic devices." The other alternative is that the "objects are foreign, and if so, it would seem most logical to consider that they are from a Soviet source." The report then proceeds to focus on the possibility that UFOs are Soviet craft, possibly built with the aid of captured German scientists.

This 1948 top-secret report, after citing a number of seemingly credible UFO-sighting reports, concludes: "It is not known at this time whether these observations are misidentifications of domestically launched devices, natural phenomena, or foreign unconventional aircraft."

The reason Hillenkoetter was selected by the counterfeiter as the alleged briefer of President-elect Eisenhower was to exploit Hillenkoetter's known involvement in the UFO movement shortly after he retired from the Navy in 1957. At that time he became a member of the board of governors of NICAP (National Investigations Committee for Aerial Phenomena), a newly formed group that would soon become the nation's largest pro-UFO group.

NICAP's official position was that some UFOs were extraterrestrial craft and that the U.S. Air Force was resorting to coverup tactics to keep the truth from the public. In 1960, Hillenkoetter "went public" in support of NICAP's coverup charges. For example, the February 28, 1960, edition of the *New York Times* carried a feature article that quoted Hillenkoetter, identified as a former CIA director, as saying "it is time for the truth [about UFOs] to be brought out in Congressional hearings."

In an article on Hillenkoetter in the November/December 1986 issue of *International UFO Reporter,* published by the J. Allen Hynek Center for UFO Studies (CUFOS), Bruce S. Maccabee wrote: "His [pro] UFO activities seem to make no sense in the context of official policy of the government for which he had worked for many years. Yet his actions do make sense if he sought to persuade the public that UFOs are real—without revealing government secrets about UFOs." (The article was written some months before release of the MJ-12 papers, and I am confident that Maccabee had no involvement in their preparation.)

In naming Hillenkoetter as the MJ-12 briefer, the counterfeiter sought to provide an added irony: that Hillenkoetter actually knew about two crashed saucers and seemingly joined NICAP and issued his public statements to try to break loose the secret. Yet if Hillenkoetter knew of crashed saucers through his work at the CIA and in MJ-12, he would never have dared make such public statements, lest the government terminate his retirement benefits, or worse. Surely a man skilled in intelligence would be wise enough to use "leaks" to a major news media reporter who would have protected his identity and retirement benefits.

The addition of the name of Dr. Donald Menzel, a world-famous astronomer and leading UFO-debunker, is an attempt at revenge by the MJ-12 counterfeiter. Menzel was hated and maligned by the "UFO-believers" during the first two decades of the UFO era. In the eyes of a UFO-believer, there could be only one thing worse than being a UFO-debunker—and that is a

debunker who *knowingly* resorted to falsehood. The counterfeiter tried to heap this final indignity on a world-famous scientist, now deceased, by listing him as a member of MJ-12. (Recently I was told by one UFOlogist that he suspected that I had replaced Menzel on MJ-12 following his death.)

Prior to the release of the MJ-12 papers, some members of the UFO movement considered Moore and Friedman to be among the most rigorous of researchers and investigators. Moore claims that he and his associates did not release the MJ-12 papers for more than two years while they investigated their authenticity. Moore said, in his lengthy banquet speech at the 1987 MUFON conference in Washington, that he and his associates had done "every conceivable thing we could do." Moore added: "What we found was that nothing seemed inconsistent."

Moore said he recognized that "maybe someone was out to embarrass us" and that the briefing document and Truman memo (allegedly) received from an anonymous source might be "disinformation." And, Moore added, "we felt if we didn't do anything with it, maybe somebody might urge us to and [this] might give us a hint as to where it had come from." However, Moore said, "we never got urged to" make public the MJ-12 papers.

This provides useful insights. If the MJ-12 papers were *authentic,* the person who sent them to Moore's friend Shandera in late 1984 so they could be made public might logically become impatient after a year or two and submit them to the *New York Times* or the *Washington Post,* or one of the sensationalist tabloid newspapers that feature wild UFO stories. But that did not occur. Nor did Moore or Shandera ever receive an anonymous letter urging them to make the MJ-12 papers public.

If, on the other hand, the MJ-12 papers are counterfeits intended for public disinformation, how could the hoaxer be confident that Moore and his associates would not spot the discrepancies noted above and in Part 1 of this article? After so many months had elapsed since the papers (allegedly) were mailed to Shandera without being made public, the counterfeiter might logically decide that Moore et al. had concluded they were frauds and that the MJ-12 papers should now be sent to less discriminating UFOlogists or the news media. Yet this did not occur either.

If the MJ-12 papers are counterfeits intended to embarrass Moore and his associates by demonstrating their inability to spot a hoax, then the counterfeiter clearly succeeded. Shortly after the MJ-12 papers were made public, Jerome Clark, editor of the *International UFO Reporter,* made an informal survey of UFO "researchers whose judgments I trust" to obtain their appraisal of the authenticity of the documents, as he reported in the May/June 1987 issue of *IUR.* Clark said he found only two UFOlogists who believed the MJ-12 documents were authentic: William Moore and Stanton Friedman, plus Shandera, who does not consider himself a UFOlogist.

Clark admitted that "Moore has been much less than forthcoming about his sources and his information, leading critics to charge that whatever his intentions, he has become for all practical purposes a part of the coverup—a point that Moore himself probably would concede." Clark said that "Moore's

promise that further (and, we would hope, better-substantiated) revelations would follow the MJ-12 release has not been fulfilled at this writing," i.e., mid-1987.

But in the next issue of *IUR,* mailed in October, Clark sharply criticized CSICOP (and me) for a news release, issued August 20, 1987, that characterized the MJ-12 papers as a forgery. He noted that CUFOS had promptly issued a refutation "prepared in cooperation with [Stanton] Friedman and William Moore." Clark admitted that the MJ-12 "document may well be a forgery. Yet if it is, it is hardly a 'clumsy' counterfeit, as CSICOP would have us believe, but an extraordinarily skilled one, and there is no reason whatever to accuse Moore of responsibility for it." (CSICOP's release did not make such an accusation. Instead, it invited Moore to cooperate with CSICOP by supplying information requested earlier that could help pinpoint the hoaxer. Moore has not responded.)

Clark concluded: "What is especially troubling is that many of those who have been swept up in the wave of anti-Document [*sic*] hysteria are among ufology's finest and ordinarily most sensible people." Clark predicted that it would be possible to resolve the authenticity question "within a few months."

Useful insights are provided by the one-page top-secret memo that mentions MJ-12, allegedly written to General Twining by President Eisenhower's special assistant, Robert Cutler. Moore and Shandera claim they found this Cutler/Twining memo in mid-1985 in one of more than a hundred boxes of recently declassified USAF intelligence documents in the National Archives to which they were the first to gain access.

The memo purports to be an unsigned carbon copy written by Cutler on July 14, 1954, but Cutler had left the country 11 days earlier and did not return until July 15. When this and numerous other discrepancies raising doubts about authenticity appeared in a National Archives memo of July 22, 1987, Friedman's attempted explanation was that the July 14 memo had been written by Cutler's deputy, James Lay, using Cutler's name.

If Friedman had checked with the Dwight D. Eisenhower Library he could have discovered that its files include a "Top Secret" memo to the Secretary of Defense and Chairman of the Atomic Energy Commission, written by James Lay on the *same date*—July 14, 1954—*over his own name, not Cutler's.* Thus, if the Twining memo had been written by Lay, as Friedman suggests, his name would appear at the bottom, not Cutler's.

One of the many discrepancies in the Cutler/Twining memo noted by the National Archives is that it does not bear a registration number as do other top-secret papers declassified and made public in the massive collection in which Moore and Shandera said they found the Cutler/Twining memo. Friedman's explanation is that the Cutler/Twining memo was "planted" by one of the USAF officers involved in reviewing and declassifying the many thousands of documents. The careless officer simply forgot to stamp a registration number on the "planted" document.

But how would the officer know that Moore and Shandera had the MJ-12 papers and sorely needed what Moore has called "an official document

available through a public source that talked about MJ-12" to "authenticate" the MJ-12 papers? And that Moore and Shandera would promptly visit the Archives and spot the one-page memo among the many thousands of papers in more than a hundred boxes of newly released files?

At MUFON's 1982 conference, held in Toronto in early July, Moore presented a paper on new evidence to support the Roswell crashed-saucer story and said it would be included in his new book, *The Roswell Evidence,* to be published in the spring of 1983. But the book was never published, perhaps because public interest in UFOs had dropped to an all-time low.

In early January 1987, a UFO-sighting report by a Japan Air Lines 747 pilot attracted considerable media attention (*SI,* Summer 1987, p. 322). Soon afterward, Whitley Strieber's book *Communion,* describing his alleged abduction by UFOnauts, quickly climbed to the best-seller list (*SI,* Fall 1987, p. 90). By the spring of 1987, publishers were interested in books on the subject—at least those that were pro-UFO.

The April 30, 1987, issue of a UFO newsletter that Moore publishes contained the first three pages of the MJ-12 document, *which had been heavily censored by Moore himself.* In the newsletter, Moore said the "information is being shared with the UFO community, and through them, ultimately, with the public at large, in anticipation that the resulting controversy will prove useful in further verifying the authenticity of its contents." He implied that the material had been supplied by his "well-placed contacts within the American intelligence community."

Several weeks later, the *London Observer* broke the story on the MJ-12 papers, which had been supplied to it by British UFOlogist Timothy Good, author of a new book entitled *Above Top Secret: The Worldwide UFO Coverup,* scheduled for publication in July. Good was quoted as saying he had obtained the MJ-12 papers "two months ago from a reliable American source who has close connections with the intelligence community." Shortly thereafter, Moore, Friedman, and Shandera made public the full and uncensored version of the MJ-12 papers, including the Cutler/Twining memo. (Moore has never replied to my several letters asking if he was Good's "American source.")

Moore, Friedman, and Shandera have publicly said they are "90-95 percent" confident of the authenticity of the MJ-12 papers, but they have offered no reason for their not being 100 percent confident. If they discovered any disturbing discrepancies in their more than two years of investigation, they have *never revealed them publicly.* Nor have they acknowledged the validity of any of the many anomalies turned up by others, even by members of the UFO movement.

Instead, Moore chooses to ignore critics and speak of additional evidence to be released at some future date, while Friedman sharply attacks the critics. One possible explanation is an understandable reluctance to admit they are victims of a hoax because of their superficial investigation. The alternative explanation is too obvious to require statement here. Neither alternative is likely to enhance their reputations in the UFO movement. •

Doomsday: The May 2000 Prediction

Some astronomical dos and don'ts in predicting the (next) doomsday

Jean Meeus

THERE HAVE always been people who—without substantial grounds—predict planetary catastrophes or even the "end of the world." We can understand that in antiquity people were terrified when a solar eclipse took place, or when a bright comet appeared in the sky. Nowadays we laugh at such reactions, but in those remote times no one knew what was actually happening.

In the twentieth century, however, this brand of doomsaying cannot be justified. When, in May 1910, Earth was about to pass through the "poisonous" tail of Halley's comet, some people panicked. When, on June 14, 1968, the minor planet Icarus passed within only four million kilometers of Earth, there were predictions of a possible collision, although astronomers insisted that the orbits of Earth and Icarus did not cross and that consequently a collision was out of the question.

In 1974, John Gribbin and Stephen Plagemann published their book *The Jupiter Effect,* which stated that in 1982 "all the planets will be aligned on the same side of the Sun" (p. 101). As a result of a complicated chain of related events, the authors predicted for 1982 a very high sunspot maximum and great earthquakes affecting principally the Los Angeles region. Alas, no planetary alignment took place, the smallest heliocentric sector containing all nine planets being 95 degrees, on March 10, 1982 (Meeus 1979); the sunspot maximum occurred in November 1979; and Los Angeles survived these events.

Today, some cranks have invented something new. They now predict a catastrophe for the year 2000, because in May of that year the planets Jupiter and Saturn will be simultaneously behind the Sun as seen from Earth. Indeed, this prediction is correct, astronomically speaking: In A.D. 2000 the two planets will be (almost) simultaneously in conjunction with the Sun—namely, Jupiter on May 8 and Saturn on May 10. (All dates in this article are based

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on Universal Time, the civil time of Greenwich). The date for the "catastrophe" is sometimes given as May 5, which is rather strange, since it's obvious that May 9 is a much better date.

In fact, the Sun-Jupiter-Saturn conjunction of May 2000 will have no effect whatsoever on the Sun or on Earth. Those who hold an opposite view should consider that groupings like that of May 2000, though relatively rare, did happen several times in recent centuries. In May 2000, the Sun-Jupiter and the Sun-Saturn conjunctions will occur at an interval of 64 hours—more than two and a half days. But since the year 1600 there have been *four* occurrences where the interval was *less than two days,* resulting in a closer "matching" than the 2000 grouping. Those four cases are shown in Table 1. Nevertheless, nothing unusual happened during those epochs. This suffices to refute the 2000 prediction.

TABLE 1

Year	Date of Conjunction with Sun: Jupiter	Saturn	Time Difference in Hours
1623	Aug. 3	Aug. 1	46
1742	Aug. 17	Aug. 18	35
1881	Apr. 22	Apr. 22	13
1921	Sept. 22	Sept. 21	33

Apparently some people did not learn from the Gribbin-Plagemann affair, and they take this new type of astrology seriously. Why did they not predict catastrophes for April 4, 1989, when Mercury and Venus will be in superior conjunction with the Sun with a time difference of only ten hours? If you object that Mercury and Venus are small planets, while Jupiter and Saturn are giants, let me reply with Table 2 (Meeus 1975).

The tidal effect of one celestial body upon another body is inversely

TABLE 2

Relative Tidal Effects of the Planets on the Sun,
The Effect of Earth Being Taken as Unity

Mercury (P)	1.89	The values given here are for the mean distance to the Sun. However, due to the large eccentricity of their orbits, the values for Mercury and Mars are given for both perihelion (P) and aphelion (A).
Mercury (A)	0.54	
Venus	2.15	
Earth	1	
Mars (P)	0.041	
Mars (A)	0.023	
Jupiter	2.26	
Saturn	0.11	
Uranus	0.002	
Neptune	0.0006	

proportional to the *cube* of the separating distance. For this reason, the tidal effect of Venus on the Sun is almost as large as the tidal effect of the giant, but remote, Jupiter. And Mercury's effect is always larger than that of Saturn.

If, however, you think of tidal effects on Earth, why did nothing happen on April 3, 1985, when Mercury and Venus passed almost simultaneously at *inferior* conjunction, *between* the Sun and Earth, with a time difference of only eight hours?

It should be pointed out, once and for all, that even an exact alignment of *all* planets cannot have the slightest effect on the Sun or on Earth. Calculation shows that the height of the tidal "bulge" on the Sun, due to the planets, would be less than *two millimeters.* And for Earth, consider the fact that the tidal action of the Moon far surpasses that of all planets combined, even when the planets are simultaneously at their closest distance to Earth.

And now let *me* make a prediction. When the year 2000 passes without having brought a catastrophe, doomsayers will provide us still another date for the end of the world. Well, let me propose August 27, 2003, when Mars will come closer to Earth than at any time in the past *several thousand* years, namely, to 55.76 million kilometers (Goffin and Meeus 1978)—although this is not much closer than the preceding record (55.78 million kilometers, on August 22, 1924). Or doomsday could take place on May 28-29, 2048, when Venus and Jupiter, the two brightest planets in the sky, will be in superior conjunction with the Sun with a time difference of less than 12 hours—or on any date you like.

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CSICOP's Electronic Mail Directory

Our new Electronics Communication Subcommittee has recommended we publish an Electronic Mail (E-Mail) directory to facilitate communication between subscribers who have access to E-Mail. (Electronic mail is the use of computer equipment to receive and send text messages.)

If you currently have an E-Mail address and wish to be listed in CSICOP's E-Mail Directory, please send the following information in writing to Barry Karr, CSICOP, Box 229, Buffalo, NY 14215-0229, USA: name of individual/organization; electronic-mail address (include specifics on space, capitalization, etc.); E-mail networks you can access (BITNET, ARPA, MAILNET, MIT, etc.); and your special areas of expertise (professional specialty or kinds of paranormal claims on which you can supply information).

My Visit to the Nevada Clinic

Diagnosing illness and prescribing remedies by electrodiagnosis

Stephen Barrett, M.D.

HOMEOPATHY IS BASED on the medically disputed concept that infinitesimal amounts of substances that can cause symptoms in healthy people can cure sick individuals with similar symptoms. (See *SI*, Fall 1987.)

A few physicians who consider themselves homeopaths use "electrodiagnostic" machines to help select the remedies they prescribe. The main proponent of this method in the United States is F. Fuller Royal, M.D., owner and medical director of the Nevada Clinic in Las Vegas. Dr. Royal is a member of Nevada's homeopathic licensing board and was its president from 1983 to 1985.

Nevada Clinic publications state that electrodiagnosis is one of the most effective aids for diagnosing illness and that "there are no incurable diseases, only ignorant physicians." The initial clinic visit—which spans a two-day period—commonly costs $700 to $800, including $165 for allergy testing and $100 for homeopathic remedies. The program also includes lectures on nutrition and allergies.

The clinic is located in a small shopping center near the outskirts of Las Vegas. It has 10,000 feet of floor space with more than 40 rooms. The spacious waiting room is tastefully decorated and seats 18 people. Most staff members wear white uniforms with royal blue jackets. There are four physicians, each of whom sees about 70 patients during a 4½-day work week. Patients are typically asked to return three times during the six months after their first visit and annually thereafter. Most learn of the clinic by word-of-mouth or from ads in homeopathic or health-food publications. After making an appointment, they are sent medical-history forms to complete.

Dr. Barrett, who practices psychiatry in Allentown, Pennsylvania, edits Nutrition Forum Newsletter *and is coauthor/editor of 21 books on health topics. He is also cochairman of CSICOP's Paranormal Health Claims Subcommittee. A reprint of this article plus Dr. Barrett's "Homeopathy: Is It Medicine?" (*SI, *Fall, 1987) is available for $3 from the Lehigh Valley Committee Against Health Fraud (LVCAHF), Inc., P.O. Box 1747, Allentown, PA 18105.*

Upon arrival at the clinic, patients are given a name-tag and asked to sign an insurance form and a consent form acknowledging that the clinic specializes in electrodiagnosis, uses homeopathic methods, has made no guarantees, and will not function as their primary physician for routine examinations or other necessary treatment.

After signing the forms, patients receive the 71-page *Patient's Handbook* and are shown a 20-minute videotape, both of which introduce the staff and explain the clinic's methods. Then they are escorted to the various rooms where examinations and educational programs are carried out. They are weighed, their blood pressure is taken by a nurse, and specimens of urine and blood are taken for laboratory analysis. Since overnight fasting is required for some of the blood-chemistry tests, a snack of juice, nuts, and rice cakes is provided after the blood is drawn. (Some clinic "veterans" bring their own snacks.)

All patients at the Nevada Clinic are diagnosed with a computerized galvanometer called the INTERRO. This is said to measure changes in the skin's electrical resistance, which indicate whether the body's organ systems have proper "electromagnetic energy balance."

To use the device, the doctor probes "acupuncture points" on the patient's hands and feet and interprets numbers on the computer's screen. (The less the electrical resistance, the higher the score.) One wire from the computer goes to a brass cylinder covered by moist gauze, which the patient holds in one hand. A second wire is connected to a probe that the doctor touches to the patient's other hand or foot. When he does so, it completes a low-voltage circuit and causes a band to rise from 20 to up to 100 on a scale on the computer screen. Readings above 60 are said to represent "inflammation," readings of 48 to 60 are normal, and readings below 48 represent "degeneration," which may signifiy cancer or atherosclerosis. The device makes a whining noise resembling that of an electrical motor; the higher the number, the louder the noise.

The INTERRO is programmed so that charts and tables can be placed on the screen to help the doctor select from approximately 1,700 homeopathic remedies. By selecting certain remedies and retesting with the probe, the doctor determines which remedies will balance the disturbed energy flow in the patient's body. (According to the *Patient's Handbook,* "the magnetic blueprint of the homeopathic remedy flows through the body via the electrical current and resonates in harmony with the body, returning an abnormal reading to normal.") One or more remedies may be placed in a tray attached to the computer to receive an energy transfer.

The INTERRO and another device are used to diagnose allergies. During the latter procedure, vials of common allergy-causing substances are placed in the tray so they become part of the circuit.

Mercury dental fillings are probed with another electrodiagnostic device said to measure negative electrical potentials, which, if too great, indicate that toxic amounts of mercury or other metals may spread to surrounding tissues and cause eventual damage to nearby nerves.

Some patients are tested by the clinic nutritionist with a device in which vitamins, minerals, and enzymes are placed in a tray connected to a meter that supposedly indicates whether the patient needs them.

Last October, at Dr. Royal's invitation, I underwent all of the electrodiagnostic tests except for vitamin testing. After testing me on the INTERRO, he said I had a number of electromagnetic blockages and had "temporomandibular joint stress, probable subclinical allergies, and possible mild early preclinical arthritis."

After determining what he thought was the most appropriate remedy, he placed a vial of vitamin B_{12} in the tray and "transferred an electromagnetic blueprint" to it. He explained that it was desirable to overcome "energy blocks" caused by the scars in my skin. Since the energy travels mainly through acupuncture meridians on the surface of the skin, he wanted to remove the blockage by injecting the specially prepared B_{12} into the points of blockage: my appendectomy scar, the areas inside my throat from which my tonsils had been removed, the skin near my jaw joints, and my vaccination scar. After doing this, he retested and said that most of the blocks were gone but that my jaw showed considerable tension and should be manipulated. After doing that, he prescribed five homeopathic remedies for home use and advised me to have my dentist replace one of my mercury amalgam fillings with another material.

During the testing, I noticed that the harder the probe was pressed to my finger or toe, the higher the reading on the INTERRO screen. Royal readily acknowledged this, but said, "That's why it takes a lot of training to use the equipment properly."

The manufacturer's literature states that if the INTERRO is used for medical diagnosis in the United States, it must bear the label "FOR INVESTIGATION USE ONLY. The performance characteristics of this product have not been established" and that diagnosis must be confirmed with an accepted medical procedure. But Royal told me that no such label was needed.

A sign in the clinic pharmacy warns that homeopathic remedies should be kept away from electrical outlets and appliances and should not be X-rayed at airport entries. The reason for this is that "remedies possess electromagnetic fields [that] become distorted and unpredictable when strongly affected by other magnetic fields."

The nutrition lecture was conducted by a woman who said she had taken correspondence courses through Donsbach University (an unaccredited school) and the American Nutrition Consultants Association (a group anyone can join for $25). Her main advice was to eat less meat and more fresh fruits, vegetables, and other unprocessed foods. She recommended installation of a home water-purifier. She also said that aluminum pots can cause Alzheimer's disease, that milk (other than goat's milk) is not good for adults, that microwave cooking "zaps the life force" and changes the molecular structure of foods, and that sunshine beneficially stimulates the pituitary gland.

Royal calls his approach "bioenergetic medicine" and says it is the wave of the future. He was introduced to it by Floyd Weston, a former insurance

executive who had investigated its use in Germany while conducting a worldwide search for "the answer to good health."

When Weston approached him, Royal was practicing medicine in Oregon and felt that the medical climate would be hostile toward electrodiagnosis. Royal told me that Weston investigated the situation in Nevada and reported that some influential people were interested in having another type of tourist industry besides gambling and had promised him that Royal would not be bothered there by medical authorities.

In 1979, before Royal could relocate, Oregon's board of medical examiners became concerned about his use of electrodiagnosis and ordered him to take written and oral competency examinations. He passed the written examination and, since he had been planning to move anyway, it was agreed that the oral exam would be dropped and his Oregon license classified as inactive. The governor of Nevada subsequently appointed Royal to a homeopathic advisory board, and a homeopathic licensing law was passed that included "noninvasive electrodiagnosis" as part of the definition of homeopathy. So this practice is now legal in Nevada.

The Nevada Clinic of Preventive Medicine opened in 1980, but in 1983 its name was shortened because insurance companies would not honor claims from a "preventive medicine" clinic. ("With the name change," the clinic newsletter notes, "more patients' insurance claims are being paid.") Royal originally directed the clinic's medical aspects and Weston directed its business aspects; but in 1983 they parted company, and in 1984 Royal became sole owner and operator.

Royal struck me as an extremely sincere person who believes in what he is doing and wants very much to help those who consult him. His clinic setup radiates caring and concern. The atmosphere is unhurried, and the staff is friendly, efficient, and energetic. Everything is explained in detail, an aspect of treatment missing from many medical practices. From a marketing standpoint, the clinic setup is outstanding.

So far 16,000 patients have been seen at the Nevada Clinic. Royal said he plans to double the clinic's size, to add a mini-kitchen and physical therapy department, and to computerize all patient records so that statistical reports will be easy to compile.

Do Royal's methods actually help people? It would be easy to suggest that, since electrodiagnosis and homeopathy are outside the realm of accepted medical practice, such treatment is worthless. But Royal says that most of his patients suffer from headaches and/or allergies. These conditions often have an emotional component that can be influenced by a positive doctor-patient interaction—which most patients who trust the Nevada Clinic are likely to experience.

Does the clinic lure people away from effective treatment? My single visit could not determine this, but several patients told me they had not been helped by their previous doctors. Royal said he does not accept cancer patients because "if they get better, physicians will say it was a spontaneous remission or that the patient did not have cancer at all; and if they die, I'll get blamed.

It's a no-win situation."

Royal said he does not want to treat severe neurological disorders like amyotrophic lateral sclerosis ("Lou Gehrig's disease") or the late stages of multiple sclerosis. Nor does he want to treat illnesses severe enough to require hospital care or surgery. Regarding medications prescribed by other doctors, he said, "All medications are to be continued until improvement is noted by the referring doctor and/or the patient. We advise patients to follow the advice of their personal physician and to give us progress reports at specific times."

It would be fascinating to conduct a well-designed study to measure what Royal is actually accomplishing. He seems open and self-confident enough to cooperate with such a study if an appropriate person or agency were interested in carrying it out. •

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Morphic Resonance in Silicon Chips

An experimental test of the hypothesis of formative causation

Francisco J. Varela and Juan C. Letelier

RUPERT SHELDRAKE puts forth in *A New Science of Life* (Los Angeles: J. P. Tarcher, 1981) the hypothesis of formative causation, according to which "morphogenetic fields play a causal role in the development and maintenance of the forms of systems at all levels of complexity" (p. 71). The term *morphogenetic field* is used here in the sense of the effect of a given configuration in the arising of similar forms in the future, an effect that Sheldrake refers to as "morphic resonance" (p. 95). This effect is supposed to be independent of matter-energy fields, and to be a cumulative one. The intention of the hypothesis of formative causation is to account for the establishment and dynamic of patterns across all natural phenomena.

Sheldrake's hypothesis is not, a priori, implausible. In fact, it does not claim more or less than the notion of action at a distance, first proposed by Newton. That is, it attempts to be a causal description of a domain of observations, but where the detailed nature of the mechanism is left open. By the same token, Sheldrake himself has suggested that morphic resonance is amenable to experimental test. One of the tests proposed by him applies to the realm of atomic configurations in the formation of crystals. Thus, "after (a crystal) has been crystallized for the first time, the form of the crystal will influence subsequent crystallizations by morphic resonance, and the more often it is crystallized, the stronger this influence becomes" (p. 104). This suggested experimental test, however, is beset with a number of difficulties, as are other experimental tests proposed by Sheldrake in this book. The difficulties are basically: (1) the complexity in synthesizing a new pattern, and (2) the difficulty in repeating its generation many times so as to ascertain whether its arising does indeed become easier, i.e., takes a shorter time.

We propose here an experimental test that apparently overcomes those difficulties. The basic idea is to follow Sheldrake's reasoning reproduced

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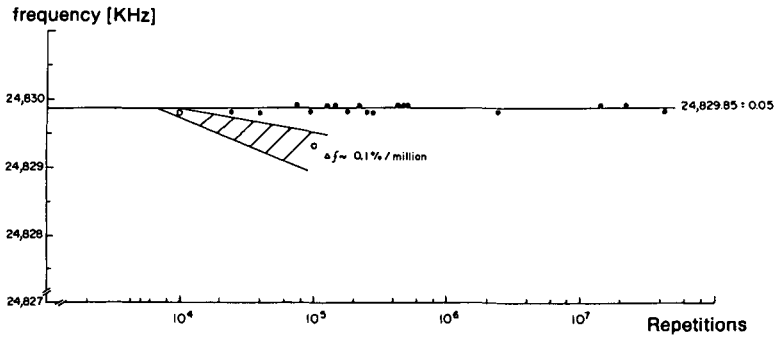
above, but to apply it for atomic configurations in silicon molecules, which can be easily manipulated in digital microcircuits. In fact, when a given bit configuration is induced in a microchip, it amounts to changes in the electronic configuration of silicon molecules, which are physically very close to the kinds of events that occur in molecular changes leading to, say, crystallization or molecular transformations. In both cases, atomic orbitals are altered and new states are acquired in an atomic lattice composed of a large number of atoms. Thus creating a new configuration in a silicon chip amounts to the synthesis of a new "crystal," with the added advantage of the ease with which it can be so produced and reproduced many times in a short time.

Specifically, we have worked with a NorthStar Horizon II microcomputer, which uses an Intel Z80 CPU and a full set of registers. The set of instructions (available upon request) starts by clearing all the memory and flags of the computer to a null state and proceeds to grow an atomic pattern only in the CPU alternate registers, in the form of an alternation of high and low electronic configurations. This "silicon crystal" is either completely novel or very rare, for no computer of this kind would have been set to this unusual configuration before. The instructions include a flag that indicates when the crystal begins to grow, and when it is complete in its growth (for a total of seven registers of eight bits each), by means of a flag in one of the address lines of the S-100 bus, which served here as interface.

The experimental test then consists of measuring the time this silicon structure takes to form, after many repetitions. The total time it takes to grow is about 40 microseconds, and the unit change in the machine operations is about 1 microsecond. If Sheldrake's hypothesis were valid, one would expect to see some effect, on the order of a microsecond, on the time it takes for this configuration to form after a suitable number of repetitions or "recrystallizations." To measure this possible small difference, we have used a model SM-2420 Heath frequency counter, with a resolution of 0.25 nanoseconds (billionths of a second) at this frequency. Thus, if we take a very conservative expected change of 0.1 percent every 1 million repetitions, we expect a difference of 6Hz (hertz, the international unit of frequency, equal to one cycle per second) after a million repetitions, a range of change that is 100 times larger than the resolution of the frequency counter (for this range of frequency).

Figure 1 illustrates the result of this experiment, where the frequency plotted corresponds to the time it takes for the silicon configuration to arise. To obtain this degree of precision we were forced to measure the average speed of morphogenesis every 10 seconds. The growth of this configuration was repeated several million times. As the figure shows, the measured time stays exactly the same even after 100 million repetitions, with a dispersion of only 0.05 Hz (or 0.125 nanoseconds). In contrast, the prediction from the hypothesis of formative causation is that the time needed to grow this silicon pattern should have decreased by morphic resonance in the range shown by the shaded area in Figure 1, if we take the conservative estimate of only 0.1 percent change after a million repetitions. This represents a speed of change



The shaded area corresponds to the expected change in frequency predicted by the hypothesis of formative causation, if a decrease of only 0.1 percent every million repetitions is assumed. Accuracy of the frequency measurement is 0.05 Hz; frequency measurements taken as averages over 10-second periods.

FIGURE 1. Frequency of the Growth of Silicon Pattern After Successive Repetitions

100 times less than that suggested by Sheldrake's interpretation of other experimental data. (Cf. the interpretation of McDougall's experiments, Sheldrake, pp. 187 ff.)

We conclude that this experimental test falsifies Sheldrake's hypothesis, even in its weak form assumed here. It is certainly possible to object that the hypothesis does not apply for the kinds of silicon structures studied by us. However, this would entail a substantial modification of the hypothesis as stated now to establish criteria for the kinds of phenomena that do fall within its range of applicability. Thus, either the hypothesis of formative causation is abandoned or else extensive ad-hoc revisions in it are called for in order to account for the data just presented. •

Abigail's Anomalous Apparition

Investigating a report of the recurring apparition of a beautiful young woman

Mark W. Durm

THE NARRATIVE displayed on the following page describes the events surrounding one of the more famous ghosts in northern Alabama. Notice specifically that it says: "Historical references to famous persons who appeared there over the years have given rise to several legends, including that of a beautiful young actress who performed the opera *La Traviata* at the dedication of the auditorium in 1914." Apparently Abigail Burns's existence and dedication were not to be questioned, only the legend surrounding her.

This narrative was included in an announcement by the Athens State College Parapsychology Foundation, Athens, Alabama, publicizing a special performance of selections from Verdi's *La Traviata* by the Huntsville Opera Theatre. The event was to be held in memory of Abigail on May 12, 1987, in McCandless Auditorium on the campus of Athens State College, where Ms. Burns supposedly had reappeared as an apparition over the years.

Before the Opera

On April 23 the operatic memorial began to receive wide publicity when the *Decatur Daily,* a newspaper from a neighboring city, gave front-page attention to the upcoming event. On May 4, WAFF-TV in Huntsville, Alabama, previewed the opera on the late evening news. As the time drew near, it seemed the media were treating Abigail's existence as fact and that the only question remaining was whether she would make a return appearance.

During that same spring quarter, I had initiated a Special Topics Class in psychology entitled "Skeptical Thinking." As the publicity mounted for Abigail's memorial, my class requested that as a special project they investigate the history of Abigail to verify the facts. The class was small (seven in number), but energetic and tenacious.

Once we began our research, my students and I soon found that there was

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Abigail Lylia Burns
1892-1914

ONE OF THE more widely known paranormal occurrences in Northern Alabama is the recurring apparition of a beautiful young woman in McCandless Hall on the campus of Athens State College. The splendid Greek Revival structure houses the college's art, music, and drama departments as well as a magnificent auditorium. Historical references to famous persons who appeared there over the years have given rise to several legends, including that of a beautiful young actress who performed the opera *La Traviata* at the dedication of the auditorium in 1914. She so enthralled the warm audience, the legend goes, that even after many curtain calls, it remained reluctant to let her go. Finally, the young actress, dressed in a white gown and clutching a bouquet of red roses, made a curtain call and in tears promised to return, even if, she vowed, "it is the last thing that I do." With that pledge, she departed in the blustery night by carriage for her next engagement in Huntsville, Alabama.

Unfortunately, that ill-omened journey was to be cut short. Near midnight, the troupe, then several miles outside the city, was caught in a severe thunderstorm. The horse-drawn carriage vibrated against the force of the wind and torrential rain. Upon reaching a bridge, the already frightened horses, startled by a sudden clap of thunder, lunged forward, disengaging the carriage, which then plunged over the side of the bridge onto the bedrock below. The actress, mortally injured, was pulled from the wreckage. Still wearing the white gown and clutching the bouquet of red roses, she was heard to say, "I have a promise to keep; I must return."

Soon after her death, a tree was planted in her honor a few feet from the side entrance of McCandless Auditorium. The tree, a giant beech, still stands in mute testimony of the town's endless affection for an actress they loved and embraced as their own.

Deep into the winter following her death, a ghostly image of a young woman, her golden hair glistening in the moonlight, was sighted at a third floor window of McCandless Hall. She wore a white gown and at her breast she clutched a bouquet of red roses. Through the years, the sightings continued—a beautiful but pensive young woman bathed in the light, always clutching a bouquet of red roses, faithfully keeping her vigil. [*From an announcement by the Athens State College Parapsychology Foundation.*]

absolutely no documentation of Abigail's visit and/or her performance at the college in 1914. After checking the historical records at the college, the county archives were surveyed as well as all of the 1914 issues (hundreds of pages) of the *Alabama Courier,* founded in 1880, and the *Alabama Limestone Democrat,* founded in 1891. These were the only two newspapers in existence in Limestone County at that time. Although both papers were attentive to reporting even the most trivial matters related to Athens College, the announcement of Abigail Lylia Burns's concert was nowhere to be found.

The October 21, 1914, issue of the *Alabama Courier* printed a large front-page article about the new music hall. (It was not named McCandless Audi-

torium until 1926.) This article explicitly stated who was to perform at the Music Hall for that year. It announced that there would be six events, and listed them as follows:

1. Enrico Aresoni, opera star
2. Zoelluer String Quartet of Brussels
3. Miss Adele Rosenthal, pianist
4. Reverend Thomas Mangum, traveler and speaker, giving an illustrated lecture on Africa
5. A college glee club concert
6. A dramatic reading.

The same issue carried this item:

> Enrico Aresoni, the well-known dramatic tenor, will appear in a concert at the new Athens College music hall next Friday night. This announcement is important for two reasons. It will be the first entertainment given in the new music hall and it is the first of a series of six programmes which will make up a splendid lyceum course offered by the college to the people of Athens.
>
> Mr. Aresoni is one of the world's foremost artists and his appearance here is a musical opportunity of great interest to all.

Again, it must be emphasized that Ms. Burns's concert was not mentioned anywhere. One would believe that such occurrences as the events that surrounded her death would certainly have been reported. Furthermore, Mrs. Eulalia Wellden, keeper of the county archives, had closely studied all papers from the past years. When asked if she had ever heard or read of Abigail, she replied: "I have no recollection of such an event and I have always been cognizant of college matters. There is no documentation at all of her ever being here."

To investigate the matter more thoroughly, the Skeptical Thinking class wrote to the Bureau of Vital Statistics in Montgomery, Alabama, requesting a copy of the death certificate of Ms. Burns. "A Certificate of Failure to Find Record" was received May 26, 1987. It was from Forest E. Ludden, State Registrar, and read: "This certificate verifies that a diligent search of the records in my custody has been made covering the period 1908 to 1922. No record was found to exist of the death of Abigail Lylia Burns during 1908-1922 in Limestone/Madison County, Alabama." In addition, a local forester was asked to date the beech tree ("Soon after her death, a [beech] tree was planted in her honor a few feet from the side entrance of McCandless Auditorium"). After discovering the only accurate way to do this would be to bore a hole into the tree, the class decided against this endeavor. Further, the Huntsville newspapers of that era were reviewed ("she departed in the blustery night by carriage for her next engagement in Huntsville, Alabama") to see if any announcement of her upcoming performance in that city was mentioned. No such announcement was found. Finally, Margaret Jones, a 1935 graduate of Athens College and a well-informed, energetic alumna, was interviewed to

ask her recollections of the Abigail legend. She had never heard of Abigail or the reappearing apparition.

After completing our research, the class members and I decided there was no substantial evidence or documentation of any kind verifying Ms. Burns visit and/or performance at Athens College in 1914. Therefore, it was concluded that she never existed.

Based on the findings of our exhaustive research as well as the Huntsville TV-station preview of the opera on the late news on May 4, I decided to present our data to the public. As class instructor, I wrote a memo on May 5 to the faculty and staff of the college outlining our findings. On the same day, I requested and was granted an interview with Huntsville's WAFF-TV. The rebuttal to the ghost story was aired on the news that evening; but none of the evidence disproving Abigail's existence was shown.

On May 12 (the day of the opera) our research received media exposure in the *Decatur Daily*. The headline read: "Skeptics: Opera singer, ghost never existed." The paper gave excellent coverage of our research and of its in-depth nature. However, they also reported the research techniques of the parapsychology group.

> Many of the details of Miss Burns surfaced through table-tilting, hypnotism and other techniques used by . . . [the] parapsychology classes.
>
> In table-tilting, about six people sit around a table with their fingers lightly touching the table top. . . . A spirit can communicate with this world by causing the table to tilt on two legs in response to questions people ask. Through table-tilting . . . [the] class learned that a heartbroken lover of Miss Burns would frequent their former meeting place on the third floor of McCandless Hall after her death because he felt close to her there.

After reading the article in the *Decatur Daily,* a reporter from a local radio station, WZYP (the station with probably the largest audience in the area), called to discuss our findings. Beginning at approximately 1:00 P.M. on that same day, this reporter related our skeptical results during the news presentation every hour until the opera commenced that evening.

During the Opera

Apparently none of the approximately 300 people in the audience saw Abigail's apparition except for one. That one, Ed Langla, a "past-life hypnotherapist" from New Orleans who had been practicing in Athens during the past year, said he saw Abigail in the light and that she had waved good-bye. Langla said the purpose of the opera performance was to let Abigail transcend to the place she "needed to go."[1]

Believers who did not see her turned to other sense modalities. Naoko Worrell, who volunteered to act as a "transmedium," said Abigail became ecstatic during certain points of the opera. Worrell stated during intermission, "Every time the soprano sings she sings along and my body starts vibrating. She's very heavy."[2] Helen Matsos, a soprano who sang an aria from *La*

Traviata, said she felt Abigail's presence while on stage. "I could feel electricity going through my arms, like they were going to sleep or something. It was very strange," she said.[3] Other opera members, however, noticed nothing unusual. One singer, Jan Nichols, stated: "We were watching backstage and there was nothing. We felt some rumbling in the floor, but that was from the air conditioner." Some members of the audience said they smelled some roses (apparently disregarding the fact that a dozen roses were actually present in the small auditorium).[4]

One wonders if those who "witnessed" Abigail's presence were not cognizant of our findings or simply disdained them.

After the Opera

The day following the opera, WZYP-Radio reported that Abigail had not appeared. The announcement supported the skeptical viewpoint, stating that skeptics had predicted she would not appear and that the ghost story was just that—a ghost story. On May 14 the *Birmingham News* ran an article entitled "The Phantom of the (Athens) Opera Fails to Make Her Appearance":

> . . . The character appears to have been "created" by the parapsychology group during its "table-tilting" seances in McCandless Auditorium and apparently never appeared at the school as a student or performer.
>
> I don't know where the story came from because it can't be proven and those who were students here long ago never seem to have heard this legend, Durm said.

Finale

Of great interest to my Skeptical Thinking class was Abigail's "persistence." Even though she had been thoroughly disproved, certain members of the Parapsychology Foundation still discussed Abigail's memorial and her rosy-scented return on May 12.

Abigail's persistence was a perfect example of cognitive bias. Selective perception and selective exposure had caused reason to continue to sleep, and as the adage warns, "The sleep of reason brings forth monsters." In this case, the monster was a golden-haired, white-cloaked singer. But in seven seeking students, reason had not slept.[5]

Notes

1. Carl Cronan, "Ghostly 'Abigail' said to show at Opera, but not for viewers," *Decatur Daily,* May 13, 1987, A16.
2. Ibid.
3. Ibid.
4. Ibid.
5. Those seven seeking students were Pamela Cobb, Ernest Ray, James Limbach, Sherry McDaniel, Shirley Frassrand, Lea Terry, and Rhonda Garrett. •

The Riddle of the Colorado Ghost Lights

A ghostly mystery yields to reflection

Kyle J. Bunch and Michael K. White

AT THE FOOT of the Sangre de Cristo mountains, in the Wet Mountain valley of Colorado, lies a small mining town of about 130 people. Once the third-largest city in Colorado, Silver Cliff held in its heyday more than 10,000 people. Now the ghost lights of the old cemetery are the main attraction to the area, and the souls of the old miners are said to dance among the gravestones.

The cemetery is not difficult to find, sitting about a mile down a dirt road, away from town. Westcliffe sits to the north; at night, the city lights project brightly into space, in stark contrast to the total blackness engulfing the cemetery to the south. Local residents have long taken for granted that the lights have chosen to appear here, sometimes as dancing blue spheres, or as white points that recede when approached, but always as something inherently inexplicable.

Those who scoff at such things as ghosts will give the usual explanation that the city lights reflect off the gravestones. Even these people seem to harbor doubts about the origin of the phenomenon, that maybe there is something beyond just the superficial explanation. To further the doubt, *National Geographic* mentioned the ghost lights in its August 1969 issue, in which a reporter investigated the cemetery on his trek through Colorado, where indeed he saw something he could not explain. This brief note on the cemetery would be forgotten were it not for the crudely lettered sign posted at the entrance:

Silver Cliff Cemetery
Founded in 1878
Famous for Ghost Lights Reported in National Geographic.

It is said that once all the lights of the town were turned off to disprove the theory of ghosts, but the ghost lights only appeared with more brilliance.

Kyle Bunch is an electrical engineer working toward his Ph.D. at the University of Utah. Michael White is a reporter in Greeley, Colorado. Both are authors of published short stories and poetry.

In order to cut through all of the stories and explanations, we decided to spend three evenings at the cemetery in hopes of viewing the phenomenon. Having both grown up in nearby Pueblo, Colorado, we have had occasion to fall prey to the aura of mystery surrounding the ghost lights. As children, the temptation to see actual ghosts in an old cemetery was almost too good to be true; unfortunately, through the eyes of frightened twelve-year-olds, any unusual phenomena are bound to be explained as ghosts. Indeed, given the setting and the anticipation, it is not surprising that even the adults who accompanied us began seeing inexplicable phenomena.

So we found ourselves sitting in a blackened cemetery on a cool September evening. The lights began to appear, faintly at first, but growing stronger as the sun dipped completely behind the mountains. Most of the lights were well-defined points that could be traced directly to the face of any particular headstone by using a flashlight. When approached, however, the lights appeared to recede or even disappeared altogether. They gave the impression of having some intelligence behind them as they wobbled and danced.

Fortunately, in order to explain the ghostly nature of the lights, one needs to know little of the paranormal. With a smattering of high-school physics, human psychology, and common sense, every effect we observed can be easily explained. In fact, the phenomenon can be summed up in one word: reflections. So let us carefully examine the mechanisms behind the ghost lights.

The headstone material is quite consistently either white or black marble that has been cut to a flat face and a curved top surface. The faces of the stones are polished to smoothness. It may not be immediately apparent, but even black marble will serve as a crude mirror if its surface is made smooth enough. Furthermore, light will be almost totally reflected if it hits the marble at an oblique-enough angle. For instance, if we were to shine a light directly perpendicular onto a slab of black marble, most of the light would be absorbed. If we were to tilt the flashlight to either side, we would find an

angle at which light would be reflected. This effect is easily observed with water. Even a muddied lake will reflect the sky if the light hits it at a glancing angle. (This angle is called the "critical angle" in physics.) In fact, there will be a range of angles at which the reflection is almost perfect.

Next, if we examine the shape of the headstones we discover some peculiar effects. The face of a typical headstone is flat, and reflection off its surface is easiest to understand. Images reflected at oblique angles become stretched; points of light can easily become blobs or streaks. Furthermore, if a headstone is smooth, but not perfectly flat, a reflection off its surface easily turns into an image that dances when the observer moves his body.

Reflections off the headstone tops behave differently from those off the headstone faces. Most people can recognize a reflection off a flat surface, and so those who see the lights give lip service to this effect. When faced with the inconsistent behavior of the lights, however, people conclude that another, inexplicable process is occurring. This "second phenomenon" can also be explained as a reflection, but off a curved surface.

In a hall of mirrors, unusual effects can be obtained by warping a reflecting surface. A mirror curving in (concave) can sharpen a reflection to a point, while one curving out (convex) can take a source of light and distort it to be a formless blob. More important, light reflecting at an oblique angle off the headstone tops would appear to move differently from that reflecting off the faces. Because the headstones are so narrow, reflections could be seen only over a thin range of horizontal distance. Thus these reflections would not be easily seen, making the effect appear transient and mysterious.

When we visited the cemetery, the city lights were like floodlights in the distance, unobscured by any lights in the immediate vicinity. We could easily position ourselves to obtain a reflection from the city lights. As mentioned previously, though, the ghostly phenomenon has appeared even when the city lights are turned off. Furthermore, some reports of seeing the lights date back to the late 1800s, indicating that a source other than the city lights exists.

Here is where we must look to nature for souces of light. Turning from the city, we are faced with blackness all around, until we look above the horizon and see nature's own floodlights, the stars. On the nights we viewed the ghost lights, the moon was not out, and stars were shining with such brilliance that it is unbelievable previous investigations could have overlooked their effects. Those who have spent their lives in the city may question that the stars could be bright enough to produce an effect; but, in the mountains of Colorado, pollution is nonexistent and the high elevation means that there is less atmosphere to impede the travel of light. Conditions are frequently such that ghost lights are produced from any location in the cemetery, even without man-made sources of light.

Whatever the source of light on a particular night, be it city lights, the stars, or the moon, two effects can be noticed. In the early evening, the ground is still cooling off from the sun's heat. The temperature fluctuates in the atmosphere, causing the sources to "twinkle" and making reflections appear to dance. Also, when the cemetery is at its darkest, all visual references

disappear. A point of light will appear to drift because of unconscious motions of the eye. This effect is frequently to blame when people report UFOs in the sky that make unusual movements.

Finally, we should not overlook perhaps the main driving force behind the ghost lights of Silver Cliff—the psychological one. Let's face it, we were in the middle of a dark cemetery in a town where reports of ghost lights are prevalent. We expected to see something, and we were not disappointed. It is easy to lose all objectivity when confronted by these mischievous orbs of light, even when as adults we should know better.

For so many years the mystique of the Silver Cliff cemetery has far outweighed any objective attempt to examine possible causes. The place has an undeniable aura of mystery, but the only truly mysterious thing we observed was a bouquet of fresh flowers adorning the grave of a two-day-old infant who had died in 1927. Obviously, there is more than one mystery in this ancient graveyard. •

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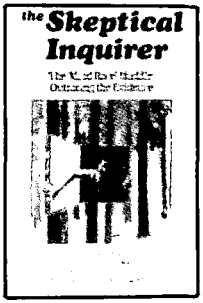

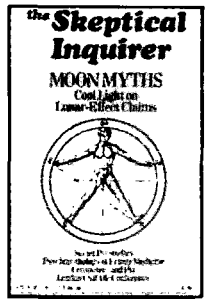

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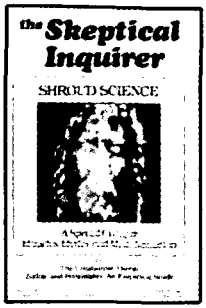

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WINTER 1979-80 (vol. 4, no. 2): The 'Mars effect' — articles *by Paul Kurtz, Marvin Zelen, and George Abell; Dennis Rawlins; Michel and Françoise Gauquelin.* How I was debunked, *Piet Hein Hoebens.* The metal bending of Professor Taylor, *Martin Gardner.* Science, intuition, and ESP, *Gary Bauslaugh.*

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Book Reviews

Easy Reading About Hard Mysteries

Mystic Places. By the Editors of Time-Life Books. *Mysteries of the Unknown* Series. Time-Life Books, Alexandria, Va. 1987. 160 pp. $14.95.

Charles J. Cazeau

MYSTIC PLACES is the first book in Time-Life Books' widely advertised new *Mysteries of the Unknown* series (see *SI* News and Comment, Summer 1987). It contains five chapters: "Atlantis," "The Great Pyramid," "Megaliths," "Pictures on the Earth," and "An Interior World." Between the chapters are five pictorial essays touching upon related subjects. The numerous and elegant illustrations alone make the book worthy of purchase.

A scientific treatise it is not. There is little if any critical analysis. Nor was this the intent. The authors are saying, "Look, this book is to entertain you with some interesting stories and pretty pictures. We don't half-believe this stuff ourselves but there's an outside chance there may be something to it all." This attitude is buttressed by qualifiers like "so-called," "purported," and "they claim." Even mainstream scientists are allowed their say, albeit briefly.

Chapter 1, on Atlantis, provides a rich background with due credit to Plato, the originator of the legend. It was easy, the authors say, to believe in the former existence of the lost continent in a largely unexplored world, where such speculations took firm root and often persisted into more recent times. The life and ideas of Ignatius Donnelly, a leading Atlantis exponent of the last century, are detailed, but the shortcomings of his work are noted. The views of Madame Blavatsky and Edgar

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Cayce are also paraded across the stage. Just when the reader is convinced Atlantis existed, the authors throw in all the geologic evidence demonstrating that there never was such a continent. The last segment of the chapter entertains the possibility that the real Atlantis was after all Crete. But that is still above water. The Time-Life authors conclude, possibly with tongue in cheek, that perhaps "a mystic Atlantis still rests in the deep, waiting to give up its age-old secrets."

Chapter 2 deals briefly with the methods of construction of the Great Pyramid at Giza and its purported purpose. This is followed by an interesting chronicle of efforts to discover hidden meanings in the dimensions of the Great Pyramid, especially those of nineteenth-century investigators John Taylor and Piazzi Smyth, who maintained that measurements of the pyramid showed the Eyptians far in advance of the times in mathematics, geometry, and astronomy. To a point, they believed that only divine inspiration could be the source of this knowledge. This account is balanced by the depiction of the work of Egyptologist Flinders Petrie, who found no scientific foundation for such measurements and their assumptions. The chapter concludes with a discussion of the pyramid-power fad—the idea that the shape of the pyramid provides a mechanism to preserve organic material, sharpen razor blades, and induce feelings of well-being for those camped inside a pyramid tent.

The focus of "The Meaning of the Megaliths" (Chapter 3) is Stonehenge. Again, a chronological approach is used, beginning with folklore and speculations of the Middle Ages about how and why Stonehenge was built, including the tale of the stones' flight from Ireland to Britain with the help of Merlin's wizardry. King James I commissioned architect Inigo Jones in 1620 to get to the bottom of the mystery. Jones concluded that the Romans built Stonehenge and that the Druids, who were not architects, had nothing to do with it. Along come William Stukeley and John Aubrey, names closely associated with Stonehenge investigations, who claim the Druids did indeed build it. Then we have Gerald Hawkins, who presents evidence that Stonehenge really functioned as a computerized astronomical observatory. This leads to a discussion of the ley lines and other archaeoastronomical evidence of Alexander Thom. It is a readable and interesting chapter, flawed only by hearsay and anecdotal tales of UFO visitations and psychic vibrations at Stonehenge, without rebuttal.

Chapter 4, "Pictures on the Earth," is mostly about the Nazca Plains. The fact is brought out that there are a multitude of large pictorial representations elsewhere on the earth. Those familiar with the Nazca lines and animal portraits best seen from the sky will also be familiar with the work of Maria Reiche, which is highlighted in this chapter. So are the "theories" of the discredited Erich von Däniken. However, the opinions of scientists of von Däniken's ideas are reasonably presented. There is a fine summation on the construction of the hot-air balloon by the International Explorer's Society to see if the Nazcas could have made such a balloon and viewed the drawings from the air or supervised their rendering. The reader is left to sort out the motives for such drawings, and alternative possibilities are presented.

The apex of the fantastic is reached in the final chapter, "An Interior World." The thesis is examined that the earth is hollow. Small wonder, perhaps, because in recent years some Soviet "scientists" proposed that the moon is hollow. The chapter explores the myths that woolly mammoths may still wander inside the earth; that a race of degenerate people lurk below; that the northern lights are beams shining out from within; that Adolf Hitler sent out expeditions to find openings in the earth so he could see the movements of the British Fleet on the other side. Even the respected Edmond Halley of Halley's comet proposed a hollow-earth theory. Fortunately, the

writer of the chapter doesn't really believe there is a hollow earth. Unfortunately, the gullible will read it and think that there might be.

In sum, an interesting book to read and a fine exercise in separating fiction from nonfiction. The skeptic will feel it gives too much credence to sensationalist beliefs. Perhaps. Yet this volume certainly distances itself from pure *National Enquirer* drivel. •

Lost in the Flying-Saucer Subculture

In Advance of the Landing: Folk Concepts of Outer Space. By Douglas Curran. Abbeville Press, New York. 1985. 132 pp. Oversized paperback, $16.95.

Michael R. Dennett

ONLY A handful of the hundreds of books about flying saucers merit serious consideration. *In Advance of the Landing: Folk Concepts of Outer Space,* by Douglas Curran, is one of those few good books. Indeed it is an exciting photo-narrative that covers facets not normally explored. In the Foreword, Tom Wolfe writes of the author: "[He] is not only a photographer but also a reporter, and an extremely gifted one." I agree.

In Advance of the Landing is the product of eight years of exploration by Curran into the North American subculture of the flying saucer. The book is richly composed of more than 60 photographs and complementary text. Its message and significance are in no way depreciated by the photojournalism format.

The author's odyssey across the United States and Canada brought him into contact with the exotic and often quixotic world of the flying-saucer worshiper. Curran met Charles Gaiffe at Giant Rock, California, in 1977. Gaiffe, then 78, had driven from his home in Ohio to seek help from UFO-contactee George Van Tassel. Gaiffe was hoping to gain information about a UFO propulsion system for "Bluebird," an incomplete flying saucer he was working on. "Bluebird," pictured in the book, was a project of the ASDP (Advanced Scientific Development Project). Van Tassel, although in close contact with the space brothers, was unable to help Gaiffe. Gaiffe continues to work on a motor that will make "Bluebird" fly.

South of San Bernardino, Curran met Carl Gendreau, another subject of his photographs. Carl, who lives in his 1962 Meteor and a tent, believes that an airliner will make contact with a giant UFO in the near future.

For those who want to see a flying saucer now, there is Henry DiCienzo's Flying Saucer Drive-in, built in 1972 and located in Niagara Falls, Ontario. Curran reports that the drive-in was recently enlarged and "now boasts 96 lights."

A key element in the success of this book is the author's ability to identify and empathize with so many of his subjects. Curran spends a night atop Red Mountain,

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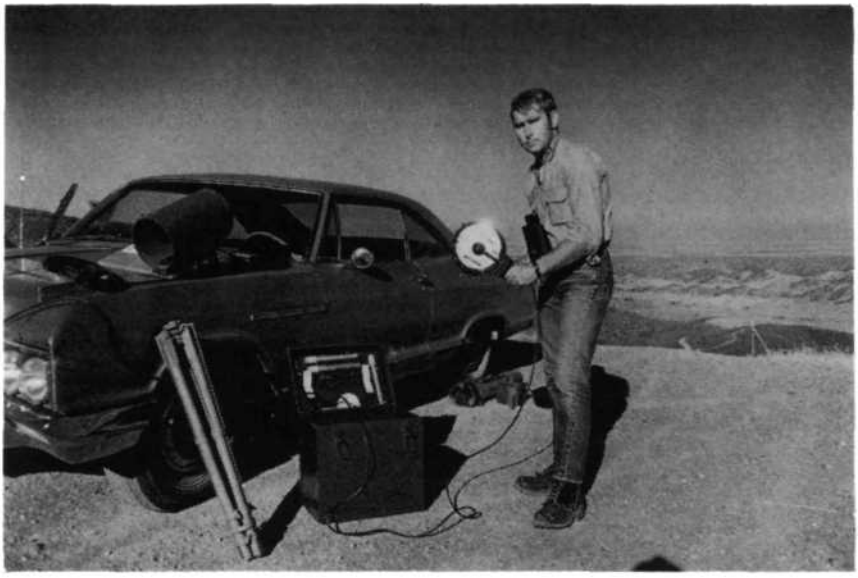
Michael R. Dennett is a member of CSICOP's UFO Subcommittee and a frequent contributor to the SKEPTICAL INQUIRER.



Orlando Toroni spends his nights on a hillside tracking spaceships hiding behind satellites. Near Orland, California. (Reprinted from *In Advance of the Landing*, with permission.)

California, with Orlando Toroni. Toroni, an unemployed bulldozer operator, uses a pair of aircraft traffic lights to signal alien spaceships, which he claims hide behind Earth satellites.

At a meeting of the Aetherius Society in Hollywood and at a New Age convention near Mt. Rainier, Washington, Curran met more UFO contactees and people who believe in them.

The author was not always successful in winning the trust of followers of alien prophets. At O. T. Nodrog's Time Ark Base near Weslaco, Texas, not all believed that Curran was sincere. He did learn from members that UFOs were five-dimensional craft and that training was available at the base on a 13,000-mph four-dimensional junior spacecraft. When Curran telephoned the base later, he was told: "We don't give interviews. . . . You have all the facts you need. . . . You've gone back to the Empire."

In March 1965, and again in 1968, John F. Reeves made contact with aliens. Known as the "spaceman of Brooksville," Florida, he subsequently built a 23-foot obelisk as a testimonial to the encounters. In 1980, he lost his home and the monument to tax collectors and now lives in a trailer. When Curran visited him Reeves was 86. Writes the author: "His newspaper clippings are kept in an old suitcase that he hauls out for anyone who wants to see. A dog-eared book contains the autographs of people who came to see his UFO monument, among them Jimmy Page of Led Zeppelin, Pat Boone, Tuesday Weld." John Reeves's biggest regret, reports Curran, is that he "will not be buried in the tomb he had prepared for himself at the foot of the obelisk, which bore this legend: 'In this tomb lies the body of John F. Reeves, one of the greatest men of our time, the greatest of them all. Outer space traveller to other planets of our universe.' "

Curran's book brings the world of the UFO devotee to life. It is a subculture that has been either ignored or called the "lunatic fringe." Initially the stories seem

humorous, even ludicrous. But as one reads further and reflects on the content, one realizes that the real story is one of individuals lost in our society. The photographs and narrative tell a tale of desperate people looking for answers. If you have an interest in UFOs, *In Advance of the Landing* would be a good investment. •

Some Recent Books

Listing here does not preclude a more detailed review in a future issue.

Druckman, Daniel, and John A. Swets, eds. *Enhancing Human Performance: Issues, Theories, and Techniques.* Committee on Techniques for Enhancement of Human Performance, Commission on Behavioral and Social Sciences and Education, National Research Council, National Academy Press, 2101 Constitution Ave., NW, Washington, DC 20037, 1988. 299 pp., $32.50, cloth, $22.50, paper. Report of NRC committee evaluating techniques claimed to enhance human performance, including psychological techniques (learning, improving motor skills, altering mental states, stress management, and social processes) and parapsychological techniques (paranormal phenomena). We hope to have a summary in our next issue.

Evans, Hilary. *Gods * Spirits * Cosmic Guardians: A Comparative Study of the Encounter Experience.* Aquarian Press, Wellingborough, Northamptonshire, U.K., 1987. 287 pp., £7.99, paper. An examination of alleged encounters with divinities, spirits, folklore entities, extraterrestrials, and so on, including the physiological, mental, and psychological processes that contribute to these reported experiences. A sequel to Evans's *Visions * Apparitions * Alien Visitors.*

Harrold, Francis B., and Raymond A. Eve, eds. *Cult Archaeology and Creationism: Understanding Pseudoscientific Beliefs About the Past.* University of Iowa Press, Iowa City, IA 52242, 1987. 163 pp., $20.00. Along with astronomy and psychology, archaeology has been the continuing object of fringe theories and bizarre claims by laymen and popular writers. This much-needed volume, an outgrowth of a symposium at the Society for American Archaeology, addresses virtually all these claims. The emphasis is not in showing how and why the fringe beliefs are wrong but in understanding the origins and levels of these beliefs and coping with them. Several of the chapters provide more information on studies of student beliefs about the past described in the editors' article in the Fall 1986 *SI.*

Narasimhaiah, N. *Science, Nonscience, and the Paranormal.* Bangalore Science Forum, The National College Buildings, Bangalore 560 004, India, 1987. 334 pp., paper. A collection of articles from the SKEPTICAL INQUIRER and writings of Indian scientists and thinkers. See Editor's column, pp. 228-229, this issue.

Reveen, Peter. *The Superconscious World.* Eden Press, 31A Westminster Ave., Montreal, Quebec H4X 1Y8, 1987. 133 pp. Reveen, who adapted a brief article from this book for our Winter 1987-88 issue, here addresses in greater length the state of hypnosis, with special references to sorting out what is fact and what is

fiction. His experience as a stage performer who uses superconsciousness, or hypnosis, in his acts lends good firsthand perspective.

Booknote

Stephen Jay Gould's latest book, *An Urchin in the Storm: Essays about Books and Ideas* (W. W. Norton, New York, 1987), concludes with a five-chapter section "In Praise of Reason" (coincidentally the title of the award Gould himself received from CSICOP in 1986). The section includes critical essays on Robert Jastrow's *The Enchanted Loom,* Fritjof Capra's *The Turning Point,* Jeremy Rifkin's *Algeny,* and "The Quack Detector," Gould's tribute to the reason and sanity of Martin Gardner's *Science: Good, Bad and Bogus.*

—*Kendrick Frazier*

Articles of Note

Belfield, Dominic. "Nessie Keeps Her Head Down." *New Scientist,* October 29, 1987, p. 71. Report on Operation Deepscan, a three-day sonar sweep of Loch Ness, widely publicized in October. The research had four scientific goals, only one of which had to do with abyssal fauna. Recounts the media's role in seeking sensational news and organizer Adrian Shine's refusal to play ball with them.

Blackmore, Susan. "A Report of a Visit to Carl Sargent's Laboratory." *Journal of the Society for Psychical Research,* 54, no. 808 (July 1987), pp. 186-198. Followed by Trevor Harley and Gerald Matthews, "Cheating, Psi, and the Appliance of Science: A Reply to Blackmore," pp. 199-207, and Carl Sargent, "Sceptical Fairy-tales from Bristol," pp. 208-218. Blackmore then replies in a letter in the following issue, vol. 54, pp. 275-276. See News and Comment, this issue.

Campbell, Steuart. "The Astronomical Mirage Hypothesis: A Solution of the UFO Problem." *Magonia,* 27 (September 1987), pp. 9-11. Author hypothesizes that astronomical and meteorological optics account for unexplained UFO reports, especially for the "consistent, universal reports of UFOs as discoids."

Edwards, Paul. "The Case Against Reincarnation: Part 3" and "The Case Against Reincarnation: Part 4." *Free Inquiry,* Spring 1987, pp. 38-49, and Summer 1987, pp. 46-53. Concluding articles of philosopher's valuable study of reincarnation claims. Part 3 examines claims about the astral body, including experiences of bilocations and out-of-body travel, especially George Ritchie's "round-the-astral-world trip" and grand tour of the next world in 1943. It concludes with "the most important argument against survival after death," the dependence of consciousness on the brain. Part 4 examines "the interregnum"—the mystical interval separating earthly incarnations—and reviews Ian Stevenson's controversial studies of Asian children who claim to remember past lives.

Ellenberger, C. Leroy. "Theory Also Exploded." *New York Times* (Letter), August 29, 1987, p. 14. Argues that recent redating of the Minoan eruption of Thera from 1500 B.C. to 1645 B.C. should be the final evidence needed to end the Velikovsky controversy. Writes Ellenberger, one-time executive secretary of the Velikovsky journal *Kronos,* "According to the revised chronology of Velikovsky's 'Ages in Chaos' books, the date for Thera's eruption is required to be about 950 B.C. With this keystone removed, Velikovsky's revised chronology collapses utterly."

Gould, Stephen Jay. "William Jennings Bryan's Last Campaign." *Natural History,* November 1987, pp. 16-26. A sympathetic look at the populist appeal of Bryan's anti-evolution campaign.

Halstead, Beverly. "A Case of Fossil Forgery?" *New Scientist,* September 10, 1987, p. 70. Harsh critique of *Archaeopteryx, the Primordial Bird,* by Hoyle and Wickramasinghe. As have earlier reviewers, Halstead finds the book disreputable. It contains "demonstrable falsehoods" and reveals "monumental ignorance of geology, paleontology, and the preservation of fossils." Says Halstead, "Absurdity is piled on absurdity. . . . The main thesis of the book is patently ludicrous and can be proved to be false. . . . What is this all about? This is the unsavory aspect, which makes this contribution one of the most despicable pieces of writing it has been my misfortune ever to read. It displays utter contempt for minimal standards of scholarship. . . . All in all, this book will remain for a long time a stain on the reputation of both authors."

Hines, Terence. "Left Brain/Right Brain Mythology and Implications for Management and Training." *Academy of Management Review,* 12, no. 4 (October 1987), pp. 600-606. Review of research on the differences between the two hemispheres of the human brain. Finds that claims that functional differences have practical implications for management and training practices are contradicted by the research.

Hughes, Kathleen A. "You Wish Your Pet Could Talk to You? Who Says It Can't?" *Wall Street Journal,* December 17, 1987, pp. 1 and 16. Amusing article about California pet "psychics," who, for a fee, will converse psychically with your pet and tell you what's wrong with it.

Janis, Chris. "Occult 'Experts' Get More Esteem Than Deserved." *New Haven Register,* November 20, 1987. Refreshing column expressing annoyance about local "demonologists" Ed and Lorraine Warren and the way media fall all over them. Proposes that "there should be a law" preventing local police and other organizations from contacting the Warrens about supposed strange occurrences. "There should be such a law because Ed and Lorraine Warren are silly. There should be a law because people—including the press—have to stop lending legitimacy to their questionable practices."

Kennedy, Donald. "The Anti-Scientific Method." *Wall Street Journal,* October 29, 1987. Column by Stanford University president laments public ignorance apparent in various public ethical debates over biological sciences. "If a substantial part of our adult population believes in astrology and the efficacy of pyramids in promoting health, why should we expect thoughtful analyses?"

Kottmeyer, Martin. "Break a Leg: The UFO Experience as Theater." *Magonia,* 27 (September 1987), pp. 3-6. Consideration of UFO stories as dramatology. The tales are filled with such stock staples of theater as chases and amnesia, "the common cold of the soap opera."

Lester, David. "Month of Birth of Suicides, Homicides, and Natural Deaths."

Psychological Reports, 60, 310, 1987. Analysis of records of Philadelphia Medical Examiner's Office for 1982. Finds distributions do not differ from chance expectations, including when analyzed by astrological sign. Shows no variation over birth months or astrological signs for suicides, homicides, or natural deaths in 1982 in Philadelphia.

Miller, Jon D. "The Scientifically Illiterate." *American Demographics,* 9 (June 1987), pp. 26-31. Publication of Miller's valuable research, summarized in our Winter 1986-87 News and Comment.

Stewart, Walter W., and Ned Feder. "We Must Deal Realistically with Fraud and Error." *The Scientist,* 1 (no. 27), December 14, 1987. Commentary on subject of whistle-blowing in science and experiences in dealing with scientific fraud. Also in the section are columns by Robert L. Sprague, Bruce W. Hollis, and Jerome Jacobstein recounting what happened when they accused colleagues of scientific misconduct. From a meeting on scientific fraud and misconduct cosponsored by the American Association for the Advancement of Science and the AAAS/American Bar Association National Conference of Lawyers and Scientists.

Tierney, John. "Fleecing the Flock." *Discover,* November 1987, pp. 50-58. Report on James Randi's investigations—aided by Don Henvick, a 260-pound man in drag—into TV faith-healer Peter Popoff.

Weintraub, Pamela. "Secret Shakers." *Omni,* December 1987, pp. 53 ff. Fairly decent article on UFO abductees' claims (the final three pages are virtually all well-informed critical commentary). Unfortunately, any positive value is totally negated by the unfortunate accompanying questionnaire, "Hidden Memories: Are You An Abductee?" which is designed to encourage readers to confuse fact and fantasy and to submit concocted "memories" and imagined experiences as real.

—*Kendrick Frazier*

Tumult of Science, Passion of Discovery

Two things are certain about science. It does not stand still for long, and it is never boring. Oh, among some poor souls, including even intellectuals in fields of high scholarship, science is frequently misperceived. Many see it as only a body of facts, promulgated from on high in musty, unintelligible textbooks, a collection of unchanging precepts defended with authoritarian vigor. Others view it as nothing but a cold, dry, narrow, plodding, rule-bound process—the scientific method: hidebound, linear, and left brained.

These people are the victims of their own stereotypes. They are destined to view the world of science with a set of blinders. They know nothing of the tumult, cacophony, rambunctiousness, and tendentiousness of the actual scientific process, let alone the creativity, passion, and joy of discovery. And they are likely to know little of the continual procession of new insights and discoveries that every day, in some way, change our view (if not theirs) of the natural world.

The past year was filled with examples of such new developments. . . .

—Kendrick Frazier, "The Year in Science: An Overview,"
in *1988 Yearbook of Science and the Future,*
Encyclopaedia Britannica, Inc.

Follow-up

Response to 'Past Tongues Remembered?'

IN "PAST TONGUES Remembered?" (*SI*, Summer 1987) Sarah G. Thomason argues that the evidence for reincarnation in Ian Stevenson's case studies in responsive xenoglossy is inadequate because in none of these cases do the subjects manifest sufficient linguistic skill to warrant the claim that they *know* the language in question. She concludes that nobody has ever spoken in an unlearned language and hence, to the extent that such a claim is offered as evidence for belief in reincarnation, so much the worse for belief in reincarnation. But she is wrong.

Thomason offers four basic arguments:

1. Native speakers typically have a vocabulary of thousands of words; but Stevenson's subjects (for example, the subject in the Gretchen case) manifest a vocabulary in the allegedly unlearned language of scarcely more than 120 words and, moreover, the subjects respond in just a word or two.

2. The supposition that Stevenson's subjects (like Gretchen) know a language they haven't learned because they *respond* or *converse* in a language they have not learned is false because they cannot be said to *converse* in it at all. In defense of this second argument Thomason notes that (*a*) Gretchen speaks in short responses to other people's questions and often her responses are simply repetitions of what the interviewer said; (*b*) of her 172 other responses, 42 are *ja/nein* answers that cannot, for various reasons, count as evidence for knowing the language; (*c*) of Gretchen's 102 remaining answers to questions asked her in German *only 28* answers in German are appropriate. For various reasons, the rest of Gretchen's answers (74) are inappropriate or "cop-outs" (p. 371).

3. Gretchen does indeed understand some few German words, but we surely do not need a paranormal explanation for her knowledge of a few German words or phrases. Research into the subject's background turns up a few opportunities for limited exposure to German—World War II movies, a look at a German book (p. 371).

4. Stevenson's explanation of Gretchen's inadequacies (near total lack of grammar and minimal vocabulary) either are not testable or are otherwise inadequate).

In the end, Thomason proposes two tests to determine whether a subject is speaking in an unlearned language: (1) Ask the subject to translate a basic word list into the so-called unlearned language. (2) Read the subject a simple story in the unlearned language and have the subject answer simple questions about it.

The first two arguments offered by Thomason reduce to the same claim, which is simply that the subjects in the cases examined by Stevenson are, by all linguistic standards, too linguistically impoverished to warrant the claim that they *know* the language in which they are responding; and if they do not know the language in which they are responding, they can hardly be said to be responding in an unlearned

language.

In reply, the first point to keep in mind is that not all cases are relevantly like the Gretchen case. The Jensen case, for example, involves a subject speaking medieval Swedish; and even though Jensen speaks as haltingly as does Gretchen, we cannot explain Jensen's limited but appropriate responses in medieval Swedish by appeal to casual contact with books, movies, or people speaking medieval Swedish. Moreover, the transcript from the Sharada case (see Stevenson's *Unlearned Languages,* University of Virginia Press, 1984, pp. 78 ff.) is very much unlike the Gretchen or the Jensen case in that it is very rich in detail and the subject speaks Bengali noncontroversially fluently with a rich grammatical and vocabulary base.

Second, and more important, Thomason's strategy is to generalize from an analysis of the Gretchen case as inadequate because (*a*) the subject responds with a very limited vocabulary and with an equally limited grammatical dexterity and (*b*) the subject cannot be said to respond in an unlearned language if the subject can only respond appropriately 28 times out of 147.

However, it would be a mistake to generalize from the Gretchen case because the reason offered for (*a*) would not hold in other cases, such as the Jensen case and the Sharada case. Moreover, even if we grant that, out of a possible 147, Gretchen offered only 28 appropriate responses (which were not single-word or *ja/nein* answers) in German to questions asked in German, how do we account for her understanding the questions and her responding appropriately in German in the 28 cases? Thomason's only answer here is that such linguistic facility as Gretchen manifests can be readily accounted for by casual contact with either movies in which German is spoken (as though one could understand fluent German in movies without already knowing it) or books written in German. But this answer is unsatisfactory. After all, for reasons just mentioned, it certainly cannot be generalized to the Jensen case or the Sharada case.

More significant, if anybody reads the Gretchen transcript very closely, the appropriateness of the responses in at least the 28 cases cannot plausibly be accounted for in the way Thomason suggests, because the appropriateness of the responses depends on Gretchen's clearly understanding grammatically well-formed sentences and questions put to her by the interviewer. The granted appropriateness of the responses in the 28 instances carries with it the inference that the subject understood at least 28 grammatically well-formed, unrehearsed, and unanticipated sentences. So, even if Gretchen responded appropriately in only 28 instances (out of 147), that in itself shows a firm capacity to understand the simple grammatical forms of the language, and it is difficult to see how that capacity can be acquired by casual contact with World War II movies and German books. The plain truth of the matter is that if anybody responded appropriately in German to 28 randomly selected questions asked in German, we would all say that that person understood or knew German—even if we were to go on to say that the person did not understand or speak the language very well.

In response to the third argument, the arguments just offered show that we cannot plausibly explain the number of appropriate responses in any cases noted so far by casual or indirect contact with the language in which the subject responds.

With regard to Thomason's fourth argument, namely, that Stevenson's explanation of the linguistic inadequacies of Gretchen et al. is either unverifiable or unconvincing, there are two replies. First, although Stevenson readily admits that Gretchen and Jensen speak haltingly and basically monosyllabically, he would probably request that Thomason take a close look at the Sharada case, in which there

can be no question of fluency. Second, and most important, in spite of the fact that Thomason asserts the contrary, Stevenson is not at all compelled, or philosophically required, to explain the linguistic inadequacies of Gretchen. The strength of Stevenson's position is that there is no explanation for the successful responses other than that the subject is speaking in, and understands, an unlearned language. Stevenson might just as well refuse to explain, or plead ignorance of, why Gretchen and Jensen do not seem to be very fluent. What needs to be explained is not why these subjects are not very fluent but, rather, how they manage to have the comprehension and capacity to speak as much as they do in an unlearned language. We would never ask why a four-year-old is not very fluent in his mother tongue, but we certainly would ask how a four-year-old could speak (even if not very fluently) a language we knew he had never been exposed to.

For all these reasons, Thomason's various arguments are not very convincing. Even so, however, nobody should have any objections to Thomason's proposed tests for determining whether a person is actually speaking in an unlearned language. Such tests seem certainly sufficient. However, if the argument I offer here is correct, because Gretchen, Sharada, and Jensen all respond appropriately and frequently in a language that they have not learned, it seems that those tests are already satisfied.

Robert F. Almeder
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Reply to 'Response to "Past Tongues Remembered?" '

Robert F. Almeder makes two main claims: first, Gretchen's small number of appropriate German responses do too require a paranormal explanation; second, even if they don't, two of Stevenson's cases that I did not analyze—Jensen (Swedish) and Sharada (Bengali)—certainly do. I'll comment on Almeder's second point first.

The reason I analyzed the Gretchen case was that I know more German than I do Swedish and Bengali, so it was an easier job; and the reason I didn't discuss all three was that my time and SKEPTICAL INQUIRER's space are limited. Almeder is mistaken in his apparent belief that Jensen and Sharada provide better evidence for paranormal linguistic competence than Gretchen does. Jensen is very similar to Gretchen linguistically: a tiny vocabulary, a few independent appropriate responses and some wildly inappropriate responses—e.g., "my wife" in response to a question about what he would pay for some item at the market. In fact, the same basic argument against Stevenson's paranormal proposal can be made (with, of course, some differences in detail) for both Jensen and Gretchen. Sharada seems relatively fluent, although (as I remarked in a footnote in my article) Stevenson gives too little data to permit a detailed analysis of her linguistic performance. However, his own discussion shows clearly that the subject could easily have learned a lot of Bengali in a perfectly ordinary fashion, and that she had a motive for doing so. Moreover, she spoke natively an Indic language that is very closely related to Bengali—so close that perhaps 80 percent of the basic vocabulary items and a comparable portion of the

grammatical features are similar or identical. And she had studied Sanskrit, which is a close approximation to the linguistic ancestor of all the modern Indic languages, including Bengali. Under these circumstances, it would take a great leap of faith to abandon skepticism about Sharada's alleged paranormal linguistic ability.

Almeder's main substantive argument is that Gretchen's answers to questions show "a firm capacity to understand the simple grammatical forms of the language." If, on an exam, a student of mine answered a German question about what he eats for breakfast with an erroneous German translation for "bedroom," I would not characterize his grasp of the simple grammatical (or lexical) forms of the language as firm. Moreover, Almeder's response focuses on my mention of the subject's previous casual contacts with German but ignores my argument that a large amount of successful guesswork is predictable in a very restricted conversational framework like that of the Gretchen interviews, given a minimal prior acquaintance with a few German words and phrases. Laymen may be startled to learn that people can guess right, often, about the meanings of things said to them in a language they don't know. This is actually quite easy to do if the situation provides clues (as in the Gretchen case) to a questioner's intent. Interesting examples can be found, for instance, in answers to the questions that judges in American courtrooms ask non-English-speaking defendants in order to decide if an interpreter is needed for a trial. Of course I can't give a precise estimate of just how many successful guesses can be predicted. Almeder finds 28 (including some repetitions, out of a total 102 questions) an impressive figure; I don't. That's why I proposed tests whose results would be conclusive; they would help us avoid fruitless arguments of this sort.

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Logo Competition

When we opened the competition for a CSICOP logo with a notice in the SKEPTICAL INQUIRER, we did not expect hundreds of entries from our subscribers around the world.

The entries ranged from the simple to the complex in design, from rough sketches to finished artwork.

After viewing all the entries, the Executive Council decided on one drawn by Tony Chace, an airline pilot from Washington State. It was chosen for its simplicity and clean lines. The globe represents the universal nature of CSICOP.

Forum

Teaching the Nature of Science

SURVEYS of the American population have shown that a large number of us believe in some type of pseudoscience. A Gallup poll conducted in 1986 (see *SI*, Spring 1987) showed that 52 percent of youngsters between the ages of 13 and 17 believe in astrology and 46 percent of them believe in ESP. Happily, the numbers are much lower for belief in ghosts, Bigfoot, and the Loch Ness monster. Many of these pseudoscientific beliefs will be carried into adulthood.

Why do so many Americans believe in pseudoscience? Although there may be many reasons, from my experience as an educator and a scientist I believe that science education has failed to teach youngsters the basics of a scientific attitude. A survey of introductory biology, chemistry, and physics college texts clearly indicates that scientific inquiry and all its ramifications are given very little, if any, treatment. Most texts devote only a few pages to the scientific method. Some texts may devote an entire chapter, but this is hardly adequate.

Since most secondary-school and college science texts do not adequately discuss the scientific method and scientific inquiry, neither do high school and college science courses. Science teachers are preoccupied with teaching students what scientists have learned rather than how they have learned it.

After I realized that the mission of science educators should be to teach students how to reason as well as to teach them what scientists have learned about our natural and physical worlds, I started

to incorporate discussions and laboratory exercises on the scientific method into my courses. The writings of many CSICOP members are used as source material and supplementary course reading. I believe that my students have now begun to look at pseudoscientific claims with a skeptical eye.

During the summer of 1983, the University of New Haven convened a small group of faculty and deans to develop a university-wide core curriculum. This group designed a curriculum that emphasized skills in communication and reasoning, among others. In order to develop reasoning skills the faculty included courses in mathematics and computer science and a new interdisciplinary course entitled "The Nature of Science." The latter course was modeled

after one offered at Wesleyan University (Middletown, Conn.) and covers "the various aspects of the natural and social sciences and the philosophy of scientific inquiry." Some of the topics addressed were the acquisition of knowledge, deductive and inductive logic, characteristics of scientific knowledge, scientific methodology and serendipity, science vs. pseudoscience, the relation of theory to data, conditions of theory application, causal and noncausal explanation, rational and empirical conceptions of science, scientific fraud, and the interpretation of data. The course is staffed by faculty with experience in many fields, including the sciences, engineering, the history of science, and philosophy.

As expected, the greatest opposition to the "Nature of Science" course came from scientists and engineers who claimed that they did not want "nonscientists" telling them how to teach their courses and run their programs. Although the course is officially included in the core curriculum, it still has its detractors.

If more science educators and concerned citizens demanded that secondary and college curricula address the nature of science, perhaps fewer people would graduate from our schools holding firmly to pseudoscientific beliefs.

—*Charles L. Vigue*

Charles L. Vigue is professor of biology and environmental science at the University of New Haven, Connecticut.

The Perseus Flasher

SEVERAL years ago, a group of Canadian amateur astronomers were conducting routine meteor observations when they noticed a flash of light in the sky (MacRobert 1985a, 1985b, 1986). The brightness lasted a fraction of a second and had an intensity comparable to the brighter stars in the sky. Initially, the flash was dismissed as a "head-on meteor" (i.e., a meteor aimed directly at the observer, an infrequent occurrence). However, the observers remembered other bright flashes that had occurred in the same area of the sky (in the constellation of Perseus). As a result of these coincidences, they started to monitor the region in Perseus both photographically and with the unaided eye. The final accumulated monitoring time was several hundred hours, during which they spotted 24 bright flashes. More important, one of the flashes was successfully photographed, proving that psychological or physiological effects could not explain all of the flashes.

On this basis, they wrote a paper and submitted it to *Astrophysical Journal,* the most prestigious professional astronomical journal. The article had serious trouble during refereeing for two reasons. First, the information it contained and the quality of the writing were poor. This problem was solved in the second draft, when a professional astronomer helped rewrite the paper using the conventions and standards expected in material for publication. Second, there were a number of technical difficulties that cast doubt on the authors' interpretation of the "Perseus flasher" as an astronomical phenomenon. These troubles were not addressed when (after three iterations) the journal's editor decided to accept the paper (Katz 1986) for publication anyway. I believe that the primary reason the editor accepted the paper despite the referees was that (on the offhand chance that this was a major discovery) he did not want to appear as a villain in history —another "Catholic church" oppressing

"Galileo."

If the Perseus flasher was indeed an astronomical object, then it would certainly be one of the major discoveries of the decade. As a result, many astronomers spent large amounts of time checking the claim. Difficulties arose when 3,476 hours of monitoring by photography, CCDs, television, and the naked eye revealed no flashes (Corso, Ringwald, and Harris 1987; Schaefer et al. 1987)—despite the claim of one bright flash every 12 hours (Katz 1986). A more serious difficulty arose when routine patrol photographs exposed simultaneously with nine of the reported flashes showed no new objects (Schaefer et al. 1987; Halliday, Feldman, and Blackwell 1987; Hudec 1987). On top of that, P. Maley performed a series of calculations for six of the reported flashes and found that in all cases an artificial Earth satellite was at the right position at the right time (Schaefer et al. 1987; Maley 1987). The idea here is that a flat surface on a satellite can cause a brief glint of sunlight to be reflected to the observer. Such glints have been frequently reported in the more obscure astronomical literature, and their rate, duration, and brightness are the same as for the Canadian flashes (Schaefer et al. 1987). Indeed, Maley has monitored some of the guilty satellites and has seen them flash at similar phase angles (Schaefer et al. 1987; Halliday, Feldman, and Blackwell 1987). With this evidence, the Perseus flasher was solved.

This whole incident could easily have evolved into a classic fringe-science issue like UFOs or cryptozoology. I believe that it was the scientific background of the Canadian amateurs that made them not even think of turning to the paranormal. They proceeded exactly as is appropriate (i.e., they gathered evidence and then published a simple statement of the facts with minimal interpretation). However, after the paper appeared, the behavior of the individuals in the Canadian group became more appropriate for fringe scientists. This behavior included harassment of an amateur astronomical journal (Berry 1987) and astronomers, as well as dark hints of coverups of secret military projects (MacRobert 1987).

—*Bradley E. Schaefer*

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From Our Readers

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Rich and beautiful reality

Paul Kurtz, in his commentary "Is There Intelligent Life on Earth?" (Fall 1987), laments the rise of paranormal claims despite the best efforts of skeptics. But why have the skeptics failed?

As debunkers, we are perceived to be "closed-minded," negative, and somehow opposed to imagination. Logic is often referred to as "cold." It seems that many people want so strongly to believe in some "higher" and more appealing reality that they do not see any value in being skeptical. I think we have more to do than just debunk. We should demonstrate, repeatedly and eloquently, the positive benefits of a skeptical attitude.

The negative benefits, such as not having one's pockets drained by charlatans, are easily understood. But the positive benefits of skepticism are more subtle, and more important. By filtering out the simplistic, deadend explanations (ghosts, goblins, etc.), we hope to arrive at a perception of reality that is not only more effective, but richer.

Good scientists are seldom cold and clinical. They are warm (often infectiously), because they love digging deeper and deeper into how things work. Far from being closed-minded, they enjoy the endless twists and turns that reality offers. But they are skeptical of too-simple answers ("It's magic," "It's beyond our understanding," etc.) that would close the door on further questions.

The workings of atoms and molecules, of cells and DNA and RNA, of spiders and trees, planets and galaxies, present a much more complex and beautiful reality than is ever imagined by the parapsychologists or astrologers. We should express that positive viewpoint often, to combat the idea that skeptics are merely "spoilers."

Rodney Forcade
Orem, Utah

Belief systems and wellness

The article by Stephen Barrett, M.D., "Homeopathy: Is It Medicine?" and the one by Lewis Jones, "Alternative Therapies" (*SI*, Fall 1987) are of interest in their consideration of scientific approaches to healing compared with those having less demonstrable efficacy or less reliable research data. However, both authors appear to overlook an underlying mechanism of central importance in all of this: the individual's belief system as it influences illness or health.

Under certain conditions, unconscious beliefs, linked to the magical thinking of childhood, may override the thin veneer of rationality acquired by civilized adults. This is exemplified in the persistence of superstitions like "knock on wood," "the evil eye," and others, despite our improved education and mass communication. Primitive peoples and neurotic individuals openly exhibit ritualistic behaviors and symptoms traceable to the powerful substrate of magical beliefs. Witness the effects of voodoo on Haitian believers.

Witch doctors, shamans, Eastern healers, and modern physicians all share a power to heal derived from culturally

reinforced belief systems—their own and that of the ill. An operative medical tenet has been *non nocere,* do no harm. This seems a desirable dictum for all therapies.

In the United States, it is estimated that approximately 80 percent of office visits to doctors are because of psychosomatic disturbances—symptoms having no demonstrable organic pathology. The medical treatment usually consists of tests and X-rays, a prescription for pills, reassurance, and other placebo-effect approaches.

Placebos, including the laying on of hands, are effective precisely because of the strong belief in the power and effectiveness of the trusted healer. However, it turns out it is not apparently all smoke and mirrors. The interface between belief system and wellness appears to be importantly connected to neurochemistry, immune and nervous systems, and other complex mechanisms on the frontiers of current scientific investigation.

Unfortunately, no matter how technologically sophisticated we may become, we will still operate with the same basic emotional equipment as our progenitors, having limited conscious control. So the ubiquitousness of belief systems will likely continue to be a force to be reckoned with.

Given this important consideration, it seems to me that in order to be truly scientific in our assessment of treatment, medical or otherwise, our paradigm needs to include belief-system effects in addition to double-blind studies if we are to satisfactorily come to grips with the question of what works for whom.

Martin Reiser, Director
Behavioral Science Services Section
Los Angeles Police Dept.
Los Angeles, Calif.

Homeopathic ghost?

In "Homeopathy: Is It Medicine?" I found most interesting the report that the very reputable *Lancet* had published a study indicating the efficacy of a homeopathic medicine for hay fever.

Isn't this on the order of actually having a ghost hooked up for an ECG or a UFO on hand to be examined by a skeptical inquirer? If some questioned area provides even one hard fact, isn't it time to go all out in scientific inquiry with the hope of broadening the field of possibly useful knowledge?

Daniel Papish
Eugene, Ore.

Homeopathic dilutions

Dr. Barrett's article on homeopathy reminds me that critics of this method often do not attack it enough on simple scientific and logical grounds, grounds simple and logical enough to place doubt in the mind of an audience with average general knowledge.

The critic usually asks, "What about Avogadro's law?" The homeopath accepts this implication and then starts waffling about "vital forces." The result is a draw in the mind of uncommitted onlookers. Why not go on to ask with what the "drug" is diluted? Tap water? Of course not. Distilled water that still contains ppm of most things at a dilution that dwarfs homeopathic doses? Well, er. Ion-exchanged water that still contains ppb of practically everything and yet dwarfs homeopathic doses? Er, well. Really pure water prepared according to a secret process? What about the substances it originally contained? Haven't they left possibly antagonistic vital forces behind and hasn't your really pure water since dissolved some of its container or the atmosphere? Silence. Lets try another tack. What is the pH of your water? Seven? What does that mean? Okay, I'll tell you. It means that there are 10^{-7} g-ions of H per liter, and this is an inherent property of pure water. What are you treating with this enormous homeopathic dose of H? Terminal flatulence?

Critics should cultivate the double-whammy, triple-whammy, or whatever it takes!

David J. Fisher
Cardiff, Wales, U.K.

Quackery and government

Is there nothing sacred for the SKEPTICAL INQUIRER? I was very impressed with William Jarvis for authoring such a bold article ("Chiropractic: A Skeptical View," Fall 1987). It was not only bold; it was well researched and clear. I also congratulate the editor for choosing to open discussion on what must be one of the most widely accepted scams in the world. But chiropractic is not the only widely accepted scam.

In the same issue was an article by Claude Pepper ("Quackery: The Need for Federal, State, and Local Response"), which brought to mind the question "Are we ever guilty of creating a scam in our attempt to suppress one?"

In his book *Losing Ground,* Charles Murray documented an almost perfect record of government's failure to eliminate poverty with its technique of direct intervention. He showed that any attempt to remove responsibility from human beings inevitably results in their having less ability to handle further responsibility in that aspect of their lives. Yet Congressman Claude Pepper's article, and probably his entire life, is devoted to doing just that. He would have experts study what is right and wrong with healthcare products and services and use the power of the state to enforce their opinions.

In contrast, notice in the following examples what abstaining from intervention does. The consumer electronics field, like health care, is a marketplace activity, but it is a much freer marketplace. There are experts. But none has the power of the state behind him. It is also a free market with respect to speech. The print media are free to say anything they like, with only the reader as the censor. Yes, there are some dumb electronic gadgets out there; and yes, there is some printed material out there that might harm some people. But, by and large, censorship as "the responsibility of the consumer" minimizes losses and optimizes benefits.

A belief in command and control as the solution to society's problems is a bigger flimflam than even chiropractic. If you wish to see people take as much control of their health as they do their wardrobe, stop government intervention in health.

Walter Clark
Fullerton, Calif.

Acupuncture action

I have been a subscriber to *SI* for some time, as well as a supporter for the Committee. But as editor of the *International Journal of Chinese Medicine* and administrator of the Center for Chinese Medicine, I find it difficult to accept Lewis Jones's one-sided presentation of acupuncture (Fall 1987).

I particularly dislike the "When Harm Follows" portion of the presentation. Certainly acupuncture, like any other medical specialty, has its horror stories. But to present them as though they are the rule is unconscionable. In the first place, sterile, disposable, individually packaged needles are now the standard, if not the rule, in the United States. These needles are used once and disposed of safely. And I doubt that there is a licensed practitioner in the United States who has ever used cutoff needles for permanent retention. I am certain that acupuncturists have left fewer such needles in patients than surgeons have left instruments, sponges, and their cat's lunch.

I would argue with every statement in the "acupuncture" portion of this article. It is only true that it is almost impossible to design an adequate double-blind protocol for acupuncture. The rest of what is said is contradicted by an exceptionally rich literature in the past five to ten years. Since Goldberg first postulated receptor sites for opiates, there has been much proved to establish a scientific and rational basis for much of the action of acupuncture.

Jack E. Booker
Center for Chinese Medicine
Los Angeles, Calif.

SETI dimensions

Just a brief note on your report about Jill Tarter's SETI talk at the CSICOP conference (*SI,* Fall 1987). Tarter was mistaken when she counted nine search dimensions, including three in space. There are only *two* spatial dimensions—right ascension and declination—required to specify antenna pointing, i.e., one need search only the "surface" of the celestial sphere. The continuum of radial distance is visible to an antenna at any given position.

Skip Newhall
Valencia, Calif.

ETI in-proximity?

In "The Burden of Skepticism," I noticed that Carl Sagan employed only a little sarcasm regarding UFOs. This may be because in his own articles in *Icarus* he recognizes, and has contributed to, the hypothesis that extraterrestrial intelligence (ETI) may well be in our vicinity and aware of mankind, and employ vehicles with seemingly magical capabilities. In *Icarus,* 19 (1973): 350, he emphasized what is now known as Clarke's law: "Such societies [of ETI, much advanced over us] will have discovered laws of nature and invented technologies whose applications will appear to us indistinguishable from magic." This would much more likely than not include the technology of efficient travel within the galaxy for exploration or other purposes, since most ETI in advance of us would be millions of years ahead, not just thousands. With W. Newman in 1981 (*Icarus,* 46:295) he wrote, "Civilizations, say, 10^6 years more advanced than ours may have little interest in interstellar colonization (while retaining an understandable concern about younger, more aggressive civilizations)." Interested readers should peruse this and the more recent literature (especially the *Quart. J. Roy. Astron. Soc.* and *J. British Interplanetary Soc.*) to learn the plausibility and scientific credibility of this in-proximity school of thought regarding ETI.

The in-proximity hypothesis agrees with Sagan's implication that ETI might be as intelligent as we, and allows them to have a strategy for handling rare "emerging" societies like ours. If this strategy should include occasional purposeful sightings of their craft, and occasional covert contacts with humans over a multi-decade period, should we reject those possibilities simply because the claims would often be accompanied by "emotional vulnerability"? Or because the in-proximity hypothesis makes SETI, via radio telescope, less credible? ETI strategy just might be intelligent enough to turn the behavior of skeptic-extremists to its advantage.

James W. Deardorff
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Home still an enigma

My friend Antony Flew takes me to task in his letter (Fall 1987) because, in defending Crookes against Martin Gardner's charge of being an unreliable witness in the case of Daniel Home, I failed to mention the work of Trevor Hall.

When I first read Trevor Hall's *The Spiritualists* (1962) I could not imagine how any rational person could any longer doubt that Crookes was indeed guilty of deceiving his colleagues by aiding and abetting a fraudulent medium, Florence Cook, in return for her sexual favors. However, when I then went on to read what other scholars had to say, notably the late George Medhurst and George Zorab, who were at least as well informed as Hall, I began to realize how very selective Hall had been in concocting his case. When, therefore, I was recently invited to contribute to a Festschrift in honor of George Zorab, I decided this would be a good opportunity to review this long-standing controversy. Accordingly I re-read Hall's book, now renamed *The*

Medium and the Scientist (1984). My confidence in the author was further shaken when I noted that there was no hint, in a footnote or preface, of the criticisms that his original publication had provoked and, worse still, even the straightforward errors of fact that his critics had pointed out were preserved intact. In my paper "George Zorab and 'Katie King,' " I came to the conclusion that Hall's scenario does not hold up; there were just too many discrepancies that the author fails to address. Flew may disagree with my conclusions, but he will at least appreciate that my omission was not due to ignorance or to evasion but to the fact that I no longer believe that Crookes was guilty as charged.

Flew further reminds me that Hall has recently published his own attempt to demolish Home: *The Enigma of Daniel Home: Medium or Fraud?* (1984). Yet what struck me most forcibly when I read this book was that, while Hall has many interesting things to say about Home, he nowhere gets near to the central puzzle of Home's career, namely, how he persuaded so many distinguished people that they had witnessed the levitations of large tables. May I draw Flew's attention to a lengthy and trenchant review of this book by the late E. J. Dingwall (*Zetetic Scholar,* 12/13, 1987)? It may well have been the last thing Dingwall ever published. Since Dingwall has been described by Hall as "my colleague of many years," it seems fitting to let him have the last word. The final sentence of his review reads: "The chief lesson to be learnt from this book is that the enigma of D. D. Home remains an enigma and there is no sign of it being resolved."

John Beloff
Dept. of Psychology
Univ. of Edinburgh
Scotland, U.K.

New remote-viewing test

The remote-viewing paradigm inaugurated by Targ and Puthoff (*Nature,* 1974) is intriguing but suffers from well-known methodological problems (Marks, *SI,* Summer 1982). I recently began teaching a course on paranormal investigation and designed an implementation of remote viewing that seems less vulnerable, as a class assignment. This implementation seems to allow for whatever "psychic attunement" seems desirable, without allowing for cueing.

Pairs of students went together to five locations on the campus of the University of Calgary, took photos, and formed joint impressions. One member of each pair then went to an interior room on the campus, while the other proceeded to my office, where s/he picked up a list of five random digits picked (with replacement) from the numbers 1 through 5. At prearranged times the viewer proceeded to the site designated by the random number, while the percipient would attempt to choose the photo that corresponded to the site at which the viewer currently stood. At the conclusion of a run of five attempts at remote viewing, separate reports were filed at my office. This procedure was followed four times for a total of twenty attempts at remote viewing.

The results were disappointing. The highest score was 7 correct out of 20, which is not even significant at the 5 percent level. Overall the distribution of scores was typical of a sample from a Poisson (4) distribution, as expected in the absence of ESP.

Mark Reimers
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Canada

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California. Bay Area Skeptics, Rick Moen, Secretary, 4412 Fulton, San Francisco, CA 94121-3817.

Sacramento Skeptics Society, Terry Sandbek, 4095 Bridge St., Fair Oaks, CA 95628.

Southern California Skeptics, Ron Crowley, Chairman, P.O. Box 5523, Pasadena, CA 91107.

Colorado and Wyoming. Rocky Mountain Skeptics, Béla Scheiber, President, P.O. Box 7277, Boulder, CO 80306.

District of Columbia, Delaware, Maryland, and Virginia. National Capital Area Skeptics, c/o Stanley K. Bigman, 4515 Willard Ave., Apt. 2204 So., Chevy Chase, MD 20815.

Florida. Florida Skeptics, Hugh C. Allen, Chairman, 1365 N.E. 105 St., Miami Shores, FL 33138.

Hawaii. Hawaii Skeptics, Alicia Leonhard, Director, P.O. Box 1077, Haleiwa, HI 96712.

Illinois. Midwest Committee for Rational Inquiry, Michael Crowley, Chairman, P.O. Box 997, Oak Park, IL 60303.

Iowa. ISRAP, contact person, Randy Brown, P.O. Box 792, Ames, IA 50010-0792.

Kentucky. Kentucky Assn. of Science Educators and Skeptics (KASES), Chairman, Prof. Robert A. Baker, Dept. of Psychology, Univ. of Kentucky, Lexington, KY 40506-0044.

Louisiana. Mid-South Skeptics, Henry Murry, Chairman, P.O. Box 15594, Baton Rouge, LA 70895.

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Michigan. MSU Proponents of Rational Inquiry and the Scientific Method (PRISM), Dave Marks, 221 Agriculture Hall, Michigan State Univ., East Lansing, MI 48824.

Minnesota. Minnesota Skeptics, Robert W. McCoy, 549 Turnpike Rd., Golden Valley, MN 55416.

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New York Area Skeptics, Joel Serebin, contact person, 160 West 96 St., New York, NY 10025.

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Pennsylvania. Paranormal Investigating Committee of Pittsburgh (PICP), Richard Busch, Chairman, 5841 Morrowfield Ave., #302, Pittsburgh, PA 15217.

Texas. Austin Society to Oppose Pseudoscience (A-STOP), Lawrence Cranberg, President, P.O. Box 3446, Austin, TX 78764.

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(continued on next page)

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